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CONTENTS.

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AN ADDRESS on Modern Moods and Movements in Medicine. Delivered at the Opening of the Post-Graduate Course of Study, Glasgow Royal Infirmary, on Sept. 1st, 1909, by Sir THOMAS OLIVER, M.D. Glasg., LL.D., D.Sc., F.R.C.P. Lond., Professor of Physiology, College of Medicine, and Physician to the Royal Victoria Infirmary, Newcastle-upon-Tyne 907

ORIGINAL ARTICLES.

The Treatment of Lupus Erythematosus. By Sir MALCOLM MORRIS, K.C.V.O., F.R.C.S. Edin., Consulting Surgeon to the Skin Department, St. Mary's Hospital; Surgeon to the Skin Department, Seamen's Hospital 911

A Study of Spinal Anæsthesia in Children and Infants. From a Series of 200 Cases. By H. TYRRELL GRAY, M.A., M.C.Cantab., F.R.C.S. Eng., Resident Medical Superintendent, Hospital for Sick Children, Great Ormond-street, London 913

A Case of Acute Torsion of a Wandering Spleen; Splenectomy; Recovery. By IAN MACDONALD, M.D. Edin. and Paris, Consulting Surgeon to the United Alkali, Peña, and Esperanza Companies; and W. A. MACKAY, M.D. Edin., F.R.C.S. Edin., Consulting Surgeon to the Rio Tinto and United Alkali Companies..... 917

A Case of Arterio-Venous Anastomosis for Gangrene. By DONALD J. ARMOUR, M.B. Lond., F.R.C.S. Eng., Surgeon to the National Hospital for the Paralysed and Epileptic; Assistant Surgeon to the West London Hospital; and E. ARCHIBALD SMITH, Ch.M. Vict., F.R.C.S. Eng., Clinical Assistant to Surgical Outpatients at the West London Hospital and the Paddington Green Children's Hospital ... 919

The Treatment of Syphilis by Intra-Muscular Injection of Insoluble Salts of Mercury as Contrasted with the Inunction Method: A Critical Rejoinder. By H. C. FRENCH, M.R.C.S. Eng., L.R.C.P. Lond., Major, R.A.M.C.; Royal Herbert Military Hospital, Woolwich 920

Congenital Dislocation of the Hip-Joint: The Ultimate Results of the Manipulative Operation, and a Note on a New Open Operation for Relapsed Cases. By J. JACKSON CLARKE, M.B. Lond., F.R.C.S. Eng., Senior Surgeon to the Hampstead and North-West London Hospital and Surgeon to the Royal National Orthopædic Hospital.—*(Illustrated)* 925

A Case of Juvenile Myxœdema. By DAVID A. THOMSON, M.A., M.B., B.S. Glasg.—*(Illustrated)* 926

Concerning Trypanosoma Dimorphon Dutton and Todd: T. Confusum, *Sp. Nova*. By R. EUSTACE MONTGOMERY, M.R.C.V.S., and ALLAN KINGHORN, M.B. Toronto..... 927

Motoring Notes. By C. T. W. HIRSCH, M.R.C.S. Eng., L.R.C.P. Lond..... 948

REVIEWS AND NOTICES OF BOOKS.

Studies on Immunity. By Robert Muir, M.A., M.D. Edin., in Collaboration with Carl H. Browning, M.D. Glasg., Alexander R. Ferguson, M.D. Glasg., and William B. M. Martin, M.B., Ch.B. Glasg. 929

Radiumthérapie. By Dr. Louis Wickham and Dr. Degrais ... 929

Der Arzt: Seine Stellung und seine Aufgaben im Kulturleben der Gegenwart. Ein Leitfaden der Sozialen Medizin. By Dr. med. Moritz Fürst 930

On the Making of Gardens. By Sir George Sitwell 930

The Fundamental Principles of Chemistry. By Wilhelm Ostwald. Authorised Translation by Harry W. Morse ... 931

Lectures to Practising Midwives. By Victoria E. M. Bennett, M.B., B.S. Lond. With Preface by Mrs. Mary Scharlieb, M.D., M.S. Lond ... 931

Medizinal-Berichte über die Deutschen Schutzgebiete für das Jahr 1907-08. (Medical Reports on the German Protectorates for the Year 1907-08) 932

Religion and Health. By Len G. Broughton, M.D., LL.D. 932

Gynäkologie. Von Professor Dr. Sigmund Gottschalk 933

The Theory of Valency. By J. Newton Friend, Ph.D. Würz., M.Sc. Birm. 933

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS,

BUDAPEST, Aug. 29th to Sept. 4th.

Application of Laboratory Work to Clinical Medicine: A Summary 933

The French Déjeuner; the American Luncheon; Another Attempted Boycott; Rival Champagne and Rival Races; Visits and Excursions: the Splitting Up of Congresses; an Interesting Exhibition ... 934

The Sections:

Tropical Diseases and Maritime Medicine: Paper by Dr. E. Tauffer..... 936

LOOKING BACK.

(From THE LANCET, Saturday, Sept. 24th, 1831.)

Severe Case of Cholera 948

LEADING ARTICLES.

POST-GRADUATE STUDY 938

THE DIAGNOSIS OF PULMONARY TUBERCULOSIS 939

THE ETIOLOGY OF LEPROSY..... 940

ANNOTATIONS.

Malaria in India: Government Action 942

Health Visitors..... 942

Severe Urinary Symptoms due to Oxyuris Vermicularis 943

The Necrosis of the Dwelling-house 943

Infant Mortality in Bombay ... 944

Acute Torsion of the Spleen ... 944

Coroners and Uncertified Causes of Death 945

Ulcerative Pneumococcic Pharyngitis in an Infant 945

Accident or Disease? 946

The Experimental Treatment of Trypanosomiasis..... 946

"Acute Tremor" in Children... 947

PUBLIC HEALTH.

Reports of Inspectors of the Medical Department of the Local Government Board ... 953

Annual Reports of Medical Officers of Health..... 954

VITAL STATISTICS:

Health of English Towns..... 954

Health of Scotch Towns..... 955

Health of Dublin..... 955

Vital Statistics of London during August, 1909 955

Analysis of Sickness and Mortality Statistics in London during August, 1909 956

SPECIAL ARTICLES.

The Borstal System for the Treatment of Juvenile-Adult Criminals.—(I.) 949

The Sixty-third Report of the Commissioners in Lunacy, 1909 951

The Services: Royal Navy Medical Service 957

The Territorial Medical Service.—V. Some Medical Aspects of Marching 960

Bristol and the Western Counties: Honorary Freemen of the City 962

Manchester: Port Sanitary Authority 962

Scotland: Lunacy in Mid-Lothian and Peebles 963

Ireland: Arterial Drainage, Suggested Legislation 964

Paris: Pernicious Anæmia and Cancerous Metastases in the Bone Marrow..... 964

Vienna: Poisoning by Methylated Gin..... 965

Canada: Forty-second Annual Meeting of the Canadian Medical Association 966

Australia: Typhoid Carrier ... 967

CORRESPONDENCE.

Domiciliary Medical Treatment under the Poor-Law (Dr. M. Greenwood) 968

The Ultra-Microscope (Mr. H. W. Bayly)..... 968

Staphylococcus Vaccine as a Treatment for Eczema (Dr. G. W. Davis) 968

Is Snow-water Unwholesome? (Dr. G. A. Atkinson) 969

Death Duties and Life Assurance 969

Steam-car Experiences 969

Synthesised Sweetening Agents (Mr. P. Martin)..... 973

Wanted—an Operating Chair (Dr. W. Odell) 973

OBITUARY.

Professor Alfons Von Rosthorn 968

Benjamin Gray Heald, L.R.C.P. Edin., L.F.P.S. Glasg., J.P.... 968

Hackworth Stuart, M.D. Lond., D.P.H. Cantab., F.R.C.S. Edin. 969

Deaths of Eminent Foreign Medical Men 969

MEDICAL NEWS.

Sanitary Inspectors' Association 911

The Society for the Study of Inebriety..... 913

The Pharmaceutical Society of Great Britain 924

Public Health in Hastings 924

The Veterinary Congress 928

Foreign University Intelligence 937

Royal Dental Hospital of London 947

Production of Radium 969

Torbay Hospital, Torquay 969

St. Thomas's Hospital Medical School 969

West London Post-Graduate College..... 969

University of London: Charing Cross Medical School 969

Weston-super-Mare Hospital ... 969

University of Cambridge 969

The Child Study Society 969

Medical Men and Children's Care Committees..... 969

The Poor-Law Officers' Association and Vaccination 969

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics 970

House of Commons..... 970

Books, &c., received 971

Appointments 971

Vacancies..... 971

Births, Marriages, and Deaths... 972

Notes, Short Comments, and Answers to Correspondents... 972

Medical Diary..... 975

Acknowledgments of Communications received 976

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX

MEDICAL AND OTHER BOOKS AND PUBLICATIONS

COVER

PAGE

ARNOLD:—
Savill ..... Clinical Medicine 1

BAILLIERE, TINDALL & COX:—
Gardner .. Surgical Anæsthesia.... 1
Green's Pathology & Morbid Anatomy 1
Sewill ..... Dental Surgery 1
Walters .... Open-Air &c. Treatment of Pulmonary Tuberculosis 1

CASSELL & CO.:—
Morris, Sir M. .... Diseases of the Skin.... 1

CHURCHILL, J. & A.:—
Medical Directory for 1910 1

CONSTABLE & CO.—
Clarke ..... Studies in Tuberculosis 1

CORNISH BROS. (BIRMINGHAM):—
Foxwell .... Enlarged Cirrhotic Liver 1
" .... Causation of Functional Cardiac Murmurs 1

GLAISHER:—
Herschell .. Indigestion 1

GRIFFIN & CO.:—
Foxwell .... Essays in Heart and Lung Diseases 1

LEWIS:—
Roth ..... Curvature of the Spine 1

LONGMANS, GREEN & CO.:—
Bennett, Sir W. .... Massage Movements in Recent Fractures..... 1

MACMILLAN & CO.:—
Hood..... Treatment of Injuries.. 1
Tubby & Jones..... Surgery of Paralyses .. 1

NISBET & CO.:—
Bennett, Sir Wm. ..... Injuries, &c., of the Knee-joint 1

PAGE

SAUNDERS COMPANY:—
Haab's Atlases of Ophthalmoscopy, &c. 1

MEDICAL LIBRARIES, &c.:—
Norwood Sanatorium—
Hare: Inebriety 1

ARNOLD:—
Hill, &c. .... Physiology, &c. 6
Hutchison .. Diseases of Children.... 6
Savill ..... Clinical Medicine 6

ASH, SONS & CO.:—
Hewitt..... Nitrous Oxide, &c. 10

BAILLIERE, TINDALL & COX:—
Allan & Farrar .... Sanitary Science..... 7
Beale..... Physiology 7
Bidwell .... Intestinal Surgery 8
Brooke..... Aids to Tropical Medicine 7
Buchanan .. Anatomy 7
Campbell.... Aids to Pathology..... 7
Carson ..... Aids to Surgical Diagnosis 7
Cunning .... Aids to Surgery 7
Ferguson.... Mathematics of Hygiene 7
Harman ..... Aids to Ophthalmology 7
Henry ..... Chemistry 7
Hudson .... Aids to Medicine 7
Jellett ..... Midwifery..... 7
Macnaughton-Jones..... Diseases of Women'.... 7
Monro ..... Manual of Medicine.... 7
Moor & Hewlett .. Applied Bacteriology .. 7
Moor & Partridge.. Analysis of Food and Drugs 7
Murrell .... Forensic Medicine 7
Rose & Carless.... Manual of Surgery 7
Stewart ..... Physiology 7
Turner ..... Medical Electricity 7
Whiting .... Aids to Medical Diagnosis 7

CASSELL & CO.:—
Herman .... Diseases of Women 8

PAGE

CHURCHILL, J. & A.:—
Cripps ..... Ovariotomy, &c. 10

FROWDE AND HODDER & STOUGHTON:—
Lockwood .. Aseptic Surgery..... 10
" .. Clinical Lectures and Addresses in Surgery.. 10

GLAISHER:—
West ..... Granular Kidney, &c... 10

LANE:—
Cope ..... Minor Gynæcology 8

LEWIS:—
Beaumont .. Injuries of the Eyes 3
Binnie ..... Manual of Operative Surgery 3
Bruce ..... Radiography 3
Martindale & Westcott .. Extra Pharmacopœia .. 8
Murray .... Rough Notes on Remedies..... 3
Osler..... Æquanimitas 3
Powell, Sir R. D..... Diseases and Disorders of the Heart 3
Stoddart .... The Mind, &c. 3
Tilley ..... Diseases of the Nose &c. 3
West & Scott Operations of Aural Surgery 3

LONGMANS, GREEN & CO.:—
Goodsall & Miles..... Diseases of the Anus and Rectum 8

MACMILLAN & CO.:—
Adami ..... Inflammation 9
Brunton, Sir L. .... Papers on Circulation .. 9
" .... Disorders of Digestion.. 9
" .... Pharmacology, &c. 9
" .... Action of Medicines 9
" .... Assimilation, &c. 9
" .... Materia Medica 9
Hewitt..... Anæsthetics and their Administration 9
Lockwood .. Appendicitis..... 10
Manual of Medicine 9
New System of Medicine 9
System of Gynæcology..... 9

PAGE

REBMAN:—
De Giovanni Morphology of the Human Body..... 6
Gateswood .. Naval Hygiene 6
Ikonographia De matologica 6
Tanzi..... Mental Diseases..... 6

RENSHAW:—
Wood ..... Application of Trusses 10

SAUNDERS COMPANY:—
Durck ..... General Pathologic Histology 5
Haab..... External Eye Diseases 5
" ..... Ophthalmoscopy 5
" ..... Operative Ophthalmology 5
Hecker & Trumpp .. Diseases of Children .. 5
Helferich.... Fractures and Dislocations 5
Jakob ..... Internal Medicine and Diagnosis..... 5
Mraeck..... Diseases of the Skin.... 5
" ..... Syphilis and Venereal Diseases 5
Preiswerk .. Dentistry 5
Sobotta .... Human Histology 5
Schaffer .... Obstetric Diagnosis and Treatment 5
Sultan ..... Abdominal Hernias 5
Zuckerkandl Operative Surgery 5

SIMPKIN, MARSHALL & CO.:—
Ganie ..... Lunacy Practice..... 10

SMITH, ELDER & CO.:—
Keetley .... Orthopædic Surgery.... 10
" .... Complicated Fractures 10

WRIGHT & SONS (BRISTOL):—
Clayton-Greene .... Pye's Surgical Handicraft 10

MEDICAL LIBRARIES, &c.:—
Baker—Book Bargains..... 11
Behnke—Stammering 11
Hygienic Handbook 8
Seymour—How to Speak Effectively.. 11

OFFICIAL AND GENERAL ANNOUNCEMENTS

COVER

OFFICIAL NOTICES:—
Medical Exhibition iv

APPOINTMENTS VACANT:—
Bolingbroke Hospital, Wandsworth.. 77
Bradford Poor-Law Union Hospital.. 77
Bristol Royal Infirmary 75
Cancer Hospital, Fulham-road 75
Central London Throat and Ear Hospital, Gray's Inn-road 77
Chelsea Hospital for Women, Fulham-road 77
City of Chester..... 77
City of London Union Infirmary, &c. 75
Cork County Sanatorium..... 74
County Asylum, Rainhill 75
County Borough of Derby 76
Derbyshire Education Committee 76
East Suffolk and Ipswich Hospital.... 75
Edinburgh School Board..... 77
Fife District Asylum, Cupar Fife..... 77
Govan District Asylum, Paisley 76
Guest Hospital, Dudley 76
Hampstead General Hospital 77
Hearts of Oak Benefit Society 76
Hertford County Hospital, Hertford.. 77
Highlands and Islands of Scotland.... 77
Hospital Infirmary, Banbury 76
Hospital for Sick Children, Great Ormond-street 78
Hospital for Women and Children, Leeds 77
Ingham, &c., Infirmary, South Shields 76
Kettering and District General Hospital 76
King Edward VII. Sanatorium, Midhurst 76
Leeds Union 75
Leith Hospital..... 77
Lincoln County Hospital..... 76
Macclesfield General Infirmary 76
Manchester Children's Hospital, Pendlebury 75
Manchester Jewish Hospital..... 78
Mount Vernon Hospital for Consumption 74
Norfolk and Norwich Hospital 75
North Staffordshire Infirmary 76
Nottingham General Dispensary..... 75
Parish Council, Papa Westray, Orkney 77
Queen's Hospital for Children, Hackney-road 77
Rotherham Hospital and Dispensary 74
Royal Boscombe and West Hants Hospital, Bournemouth 74
Royal Buckinghamshire Hospital, Aylesbury 75
Royal Hospital for Diseases of the Chest, City-road 76

APPOINTMENTS—(Continued)
Royal Isle of Wight County Hospital, Ryde 77
Royal National Orthopædic Hospital 77
Royal Naval Medical Service 75
St. Giles, Camberwell, Infirmary 77
Scholastic, &c. Assn., Craven-street.. 84
Seamen's Hospital Society, Greenwich 76
Staffordshire General Infirmary, Stafford 75
Taunton and Somerset Hospital 76
Teignmouth Hospital 75
Tunbridge Wells General Hospital .. 76
University College Hospital 74
University College of South Wales, &c., Cardiff..... 78
Wandsworth Union Infirmary..... 78
West Ham Hospital, Stratford 77
West London Hospital, Hammersmith-road 76
West Norfolk and Lynn Hospital 74
Weston-super-Mare Hospital 76

ASSISTANCIES, MEDICAL 84

ASYLUMS, HOMES, &c.:—
A. H., Nicholas-lane 74
Applegarth Sanatorium, Northallerton 68
Argyll County Sanatorium 68
Ashover Sanatorium, Derbyshire 68
Ashwood House, Kingswinford 67
Barnsley Hall, Bromsgrove 68
Burwood House Hospital 68
Bishopstone House, Bedford 67
Bourne Castle Open-Air Sanatorium.. 75
Brunton House, Lancaster..... 75
Buntingford House Retreat, Buntingford 70
Camberwell House, Peckham-road..... 67
Cheadle Royal 67
Clarence Lodge, Clapham-park..... 67
Coppice, The, Nottingham 68
Cotswold Sanatorium, near Stroud.... 71
Court Hall, Kenton 68
Crooksbury Sanatorium, Surrey 71
Dalrymple House, Rickmansworth .. 68
David Lewis Colony, Alderley Edge .. 75
Ghyll Retreat, Cockermouth 70
Grove House, Church Stretton 68
Grove, The, Catton, Norwich 68
Haslemere Nursing Home 74
Haydock Lodge, Newton-le-Willows.. 68
Heigham Hall, Norwich 67
Home for Epileptics, Maghull 75
Hon. Sec., Outer Temple..... 75
Invernith Lodge Retreat, Colinsburgh 70
Kingsdown House, Box 67
Lady Superintendent, Streatham 75
Lawson, Nordrach-on-Dee, Banchory 68
Leigh House, Warwick 67
London Open-Air Sanatorium, Wokingham 71
Lowe, Ryde 75
Mailing-place, Kent 68
Manna Mead, Blackheath 75

ASYLUMS—(Continued).
M.B., North Finchley 73
Melbourne House, Leicester 66
Middleton Hall, Co. Durham..... 67
Miss Gotte's Nursing Home, North Finchley 73
Moat House, Tamworth 67
Newlands House, Tooting 67
Newman Retreat, Lancashire 70
Nightingale Home, Clapham Common 75
Nordrach-upon-Mendip Sanatorium.. 71
Northlands Retreat, Wandsworth 68
Northumberland House, Finsbury-pk. 69
Northwoods House, Winterbourne.... 69
Norwood Sanatorium 70
No. 116, L.O., Strand..... 74
No. 578, L.O., Strand..... 74
No. 940, L.O., Strand..... 74
Ochil Hills Sanatorium, Meinathort.. 71
Osea Island, Heybridge 66
Painswick Sanatorium..... 66
Peckham House, Peckham-road 69
Plas-yn-Dinas, Merionethshire..... 70
Plymptom House, South Devon 68
Portsmouth Corporation Mental Hos. 68
St. Andrew's Hospital, Northampton 68
St. Luke's Hospital, E.C. 67
Sanatorium Clavadel 71
Sawyer, Portsdown-road..... 74
Springfield House Private Asylum, Bedford 68
Stocker, Craven-street 74
Stretton House, Church Stretton..... 68
Sunnydene, Grove Park 74
The Grange, Rotherham 67
The Retreat, York 67
Tower House, Leicester 68
Vale of Clwyd Sanatorium..... 71
Warneford Asylum, Oxford 67
Whitmead Hill Sanatorium, Farnham 68
Wonford House, Exeter 68
Wye House, Buxton 68
Yarrow Convalescent Home, Broadstairs..... 69
67, Ritherdon-road, Balham 74

COMPANIONS:—
No. 939, L.O., Strand..... 85
No. 960, L.O., Strand..... 85

FINANCIAL, &c.:—
Birkbeck Bank..... 74
Equitable Reversionary Interest Soc. 74

HEALTH RESORTS, BATHS, &c.:—
Aberystwyth, the Biarritz of Wales .. 68
Bad Mergentheim 72
Geneva Hydrotherapic Establishment 72
Leysin, Switzerland 72
San Pellegrino, Italy 72
Smedley's, Matlock 72
Wiesbaden—
Kur Establishments, &c 73
Woodhall Spa Brome-Iodine Baths .. 72

HOMES WANTED:—
J. P., Nicholas-lane 74

HOTELS, &c.:—
Barton Court Hotel, New Milton 73
Hampstead Heath—
Heath Private Hotel 74

HOUSE & ESTATE AGENTS:—
Bedford & Co., Wigmore-street 78
Clark, Wimpole-street 81
Edwards, Herne Hill..... 82
Elliott, Son & Boyton, Vere-street.... 82
Forbes Robertson & Lillie, Glasgow .. 82
Physician, Leadenhall-street 82
Scott, Chancery-lane..... 82
Wilkinson, Cardiff 81
34, Cleveland-square, W. 81
62, Queen Anne-street, W. 61
CONSULTING-ROOMS:—
No. 902, L.O., Strand..... 82

LIFE & FIRE ASSURANCES:—
General Life Assurance Co. 74
National Provident Institution 74
Prudential 74

MASSAGE:—
H. M. S., Regent's Park 74
L. J. L., Peckham 74

MEDICAL ACCOUNTANTS, &c:—
Turner 85

MEDICAL AGENTS:—
Blundell & Rigby 73
Fieldhall, Limited 12
Manchester Medical Agency 76
Manchester Medical Association..... 18
Medical Agency 12
Needes, Herbert 73
Needes, J. G. 81
Peacock & Hadley 81
Reynolds & Branson 78
Scholastic, Clerical, &c., Assoc. 19
Turner 80

MEDICAL SCHOOLS:—
(LONDON.)
Charing Cross Hos. Medical College.. 60
King's College Hosp. Medical School 61
London Hospital Medical College.... 61
London School of Tropical Medicine.. 60
Middlesex Hospital Medical School .. 62
Royal Dental Hospital of London.... 60
St Bartholomew's Hos. and College .. 62
St. Mary's Hospital Medical School .. 61
St. Thomas's Hospital Medical School 61
University College Hospital Medical School 60
West London Post-Graduate College 64

(For continuation of Index to Official and General Announcements, and Trade and Miscellaneous Advertisements, see page 4.)

An Address
ON
MODERN MOODS AND MOVEMENTS IN MEDICINE.

Delivered at the Opening of the Post-Graduate Course of Study, Glasgow Royal Infirmary, on Sept. 1st, 1909,

BY SIR THOMAS OLIVER, M.D. GLASG., LL.D., D.SC., F.R.C.P. LOND.,

PROFESSOR OF PHYSIOLOGY, COLLEGE OF MEDICINE, AND PHYSICIAN TO THE ROYAL VICTORIA INFIRMARY, NEWCASTLE-UPON-TYNE.

GENTLEMEN,—It is with a feeling of pleasurable satisfaction that in response to an invitation from my old friend and fellow student, Dr. D. Newman, I find myself addressing an audience in this infirmary endeared to me by memories of long ago. In my hospital days this was the only infirmary in Glasgow; here met on common ground the University and the Andersonian student. The transference of the old College from the High-street to Gilmorehill and the demands of an increasing population necessitated the establishment of other hospitals, but, notwithstanding these, the Glasgow Royal Infirmary still retains a leading place among institutions for the treatment of the sick and injured and is equally well known as a school of clinical instruction. It could not be otherwise, for opportunities create capable physicians and brilliant surgeons. There are few cities which offer the wealth of clinical material to be found in this busy industrial centre.

POST-GRADUATE STUDY.

Apart from the assumption of civic duties there are few attractions outside our profession which, by appealing to the average general practitioner, tend to break in upon the routine of his daily life. It is pleasing, therefore, to find that the courses of post-graduate study throughout the country have caught on. The thoughtful medical practitioner of to-day feels that in order to be abreast it is imperative upon him to revisit from time to time some of our large infirmaries and see what is being done therein. I am not for a moment maintaining that it is only in the large hospitals and amid the busy haunts of men that the most studious practitioners are to be found. In my professional visits to country districts I am frequently brought into touch with thoughtful and well-read medical men, from whom I have often come away with memory refreshed and knowledge gained. These men adorn their profession by throwing into their work, which is often unseen and not always appreciated, their very best. Medical men of to-day, if not more highly educated than their predecessors, have, at least, more opportunities of becoming so. Many of them are no longer contented to go on through life resting upon the instruction they received as students. This can only at the best be a foundation for future experience to build upon. Professional problems are through the daily press being more and more thrust upon the public, patients are becoming not less imperious in their demands but more inclined to run after novelties, competition in the profession is growing keener and keener,—these with an increasing pronouncement in favour of specialism and the almost uninterrupted stream of young doctors passing into the ranks, fresh from college and with the newest ideas, force the modern medical practitioner to be at least a wider if not a better read man than his predecessor of a few decades ago. There will always be circumstances in the career of some students—e.g., the death of a parent or a financial loss—which will compel them to get through the curriculum and obtain their degree with the least possible delay. As the years pass by these men cannot but feel the need of that fresh instruction which a post-graduate course can supply. Notwithstanding all that is said in favour of book study, there is yet something in oral teaching, the example set by a teacher, his enthusiasm, and methods which no book study can adequately supply. While the good effects of post-graduate instruction immediately concern those who take part in it the public are the gainers in the end. The trend is onward, for medicine is a progressive science. Here in this Royal Infirmary—an institution not wanting in historical associations, wherein Lord Lister made those experiments which revolutionised surgery and added considerably to the total sum of human life and happiness, where Sir William Macewen laid the foundation of his well-merited reputation, and Sir William Tennant Gairdner taught as no one else clinical medicine—the opportunity of practical study is afforded to you.

I can speak from experience of the great advantages which post-graduate courses offer medical practitioners. To the Newcastle Royal Victoria Infirmary there come for examination twice a year medical men from all parts of Great Britain and the colonies to obtain the degree of Doctor of Medicine of the University of Durham for practitioners of 15 years' standing. Men home from the colonies sometimes spend a few weeks or months attending the Infirmary cliniques before sitting for the examinations. In discussing the subject with those men and the value to be attached to the few weeks' training in the Infirmary, they have invariably spoken of the extreme delight it has been to them to feel themselves in the hospital wards once more and to be taking part again in bedside instruction. Here, in Glasgow, you are particularly well placed. All medical men ought to take, for their own good as well as for that of their patients, a holiday every few years of such a kind as will enable them to combine recreative study with pleasure and relaxation. From three to four weeks off work every three or four years, half of which should be given to post-graduate study, would, with regular perusal of medical journals, keep any man well primed and up to date. It is not only a laudable ambition but a necessity on the part of a medical practitioner to seek to add to his information. Situated as Glasgow is at the gateway into some of the finest scenery in Scotland it appeals to medical men not only of this district but to those who are labouring further afield to come here for a fortnight to three weeks, to see something of your infirmary and your methods, to take part in post-graduate study, and to close their holiday by a run through the Highlands.

PREVENTIVE MEDICINE: MEDICAL INSPECTION OF SCHOOL CHILDREN.

It has hitherto been a well-founded complaint that in medicine there have been few salaried appointments compared with those in law. Recently the sphere of practical medicine has become widened by the action of the State. The rise of the factory system, the nation's care for the commonweal, and the medical inspection of school children have opened up careers for members of our profession and brought medicine into touch with social problems in a manner until recently not dreamt of. One unsatisfactory aspect of our educational system was seen in the absence of any attempt to deal personally with the physical and mental capabilities of children. All have hitherto been treated alike, with the result that, while the clever child was helped on, the dullard was allowed to lag behind. It was never thought that some of the dulness might be due to defective sight or hearing, the result of adenoids, or be a sign of impaired health. The new Education Act requires that a medical examination shall be made not only of the weak and ailing but of all children in the elementary schools, so that physical defects in their constitution may be detected and if possible corrected. The education given must be in accordance with the capability of the child to receive it. It is stated that in Glasgow alone Dr. Hugh Wright Thomson examined 52,000 school children and found that 35 per cent. of them had defective vision, one-half of which was due to mental deficiency aggravated by malnutrition. The amount of educational waste revealed by these figures is astounding, and shows how faulty our system all along has been. There is, in my opinion, an excellent future before preventive medicine in all its bearings. It is more than likely that an increasing number of young medical men will adopt one or more branches of the State service as their life's work. What with the results obtained by preventive medicine and the increasing development of specialism the work of the future general medical practitioner is likely to be curtailed, as well as his income. It may probably be knowledge of this fact and of the irregular calls upon their leisure that is leading medical men to accept appointments in the public service and to remain contented therein, or it may be that the increasing tendency to enter the service of

the State is an expression of a desire on the part of many men for greater leisure and the wish to have their work compressed within a stated number of hours per day. Personally, it is the strenuous life that appeals to me. Restlessness and self-indulgence are the bane of the age. Against the alluring encroachment of these we must be on our guard, for the one affords no opportunity of study and the other indisposes to it.

WORKMEN'S COMPENSATION ACT.

As already stated, the trend of modern days is in the direction of the prevention of disease. Since there are millions of men and women in this country who are spending many hours daily in factories, amid surroundings that make for ill health, the study of industrial diseases and the conditions which cause them will in the future become more and more a national requirement. There will have to be assigned to the study of such problems a larger place in the medical curriculum than heretofore. The diagnosis and treatment of industrial diseases might with some advantage find experimentally a place in some of the post-graduate courses in this country. Legislation keeps imposing responsibilities upon members of the medical profession in regard to which they ought to have some special training. Hitherto it has been said of medicine that its function is to prevent disease or to cure it, and failing this to soothe and to mitigate the pangs of suffering. Parliament has added duties of another kind. The operation of the Workmen's Compensation Act is bringing medical men into conflict with each other, with their patients, and with employers. Human life has had by Act of Parliament a money value properly assigned to it in case of accidents. Upon the medical profession has been imposed the task of mutually safeguarding the interests of employers and employed. Malingering is a fine art, skilfully practised and not always readily detected. Upon all kinds of complaints and conflicting claims the medical practitioner must bring to bear an open mind, he should carefully study the physical signs and symptoms, never forgetting that behind apparent malingering there may yet lurk the possibility of concealed disease.

It is an unfortunate circumstance that the Workmen's Compensation Act has brought into evidence a class of lawyer and of medical practitioner whose behaviour is neither creditable to themselves nor to the professions to which they individually belong. There are lawyers who on unmistakeably insufficient grounds urge men and women to proceed to law to recover for imagined effects of injuries and there are medical men who stoop to similar recommendations. We have no right to question the motives of others, but unless a doctor is thoroughly convinced of the reality of an illness and the genuine basis of a claim for compensation under the Act he should not, because he cannot conscientiously, advise the case to be taken into court. It is actions such as these which have tended to estrange factory owners and their workmen and have made county court judges and employers doubt the veracity of medical opinion. Collusion between a doctor and a lawyer for the purpose of getting gain through fighting unsustainable claims is to be deprecated; it is degrading to the individuals concerned and detracts from the honour and dignity of the professions. Theoretically, a doctor should be neither for the employer nor for the workman; his duty is to detect disease if present and to ascertain its cause. So great is the responsibility imposed upon medical men by the Workmen's Compensation Act that even a diagnosis should not be carelessly or light-heartedly expressed, since it carries possibilities of a far-reaching character. A diagnosis of plumbism, if it is "a shot in the dark," is to be discountenanced, for lead poisoning as an industrial disease is scheduled for compensation under the Act. The malady is not always easy to detect. Unless there are, therefore, clear and well-defined evidences of saturnine poisoning a medical man has no right to cloak his ignorance by glibly pronouncing the symptoms to be those of lead poisoning. The diagnosis may or may not be correct. If the malady exists and has been caused by occupation the person claiming compensation is entitled to all the moral and medical support a doctor can give, but every case should be approached with a mind unbiassed and in no spirit of partisanship. All that can be done is to bring to bear upon these cases a careful appreciation of facts in view of the possibilities which the diagnosis involves and the financial calls which it may in consequence impose upon industry, calls which industry can only sustain within limits, notwithstanding the fact of employers being wisely covered by insurance. Workmen's insurance is admittedly a step in the right direction. Although a protection to the working classes, it is liable to abuse. While workmen's insurance is believed by some persons at home to make employers careless, less interested in the welfare of their workers, and less disposed to take precautions for their safety since all risks are covered, in Germany it is said to have exercised an undoubted influence for good both upon employers and employed, as seen in the improved hygiene of factories having reduced the number of cases of tuberculosis among the workers, also in the application of better means to prevent accidents, and to avert industrial diseases.

It is less now than formerly a debateable point as to whether industrial diseases should for compensation purposes be placed on the same footing as accidents. The fact that already a certain number of diseases has been scheduled is enough to show how legislation is tending. Such a disease as anthrax is both an industrial disease and an accident, since it occurs in persons following a particular trade, and in these often develops with the suddenness characteristic of an accident. As regards the development of epithelioma on the arms and hands of workers among tar, the relationship of the external disease and the nature of the occupation is beyond dispute. The disease is the result of recurrent irritation of the skin caused by tar products, but in the case of internal diseases, such as lead poisoning, the relationship of the malady to occupation is not always so apparent, for there enter into the causation of plumbism, in addition to exposure to lead, such other predisposing circumstances as individual idiosyncrasy, fatigue, and the influence of alcohol, as well as the internal condition of the factory. The ventilating shafts or fans in a factory, for example, may not have been working properly, and there may have been more dust on one particular day, and it is this circumstance which perhaps has caused all the damage. Proved neglect on the part of an employer to carry out Home Office regulations ought only to aggravate his liability. Individual idiosyncrasy, while of much interest from an etiological point of view, counts for nothing from a medico-legal. It is known that while several persons may have worked in the same department of a white lead factory for years and not suffered, others have quickly succumbed to the consequences of their occupation, and at the necropsy, in the absence of a history of occupation and of a blue line on the gums, there may be no gross changes in the internal organs of the body whereby a diagnosis of plumbism can be made. Although the kidneys are contracted there is nothing in the naked-eye appearance of these organs to distinguish the lesions from interstitial nephritis occurring in persons who have never worked in lead, nor is there anything definitely related to occupation in an attack of cerebral hæmorrhage and hemiplegia in a lead worker, which differs from that met with in a person who has followed another trade. It must not be forgotten that there are poisons other than lead which predispose to changes in arteries and kidneys. So far as compensation for industrial lead poisoning is concerned, I am of the opinion that in the absence of a blue line on the gums and of a history of exposure to lead no diagnosis of plumbism can be regarded as absolute unless lead is found in the urine during life, or after death the metal is found in the liver and other internal organs. Apart from these, the diagnosis of lead poisoning is more or less only a surmise.

SOCIO-ETHICAL MATTERS.

During the last few years a change has been creeping over the profession of medicine as indicated by the increasing interest taken in socio-ethical matters which make for self protection, also in a growing demand on the part of the general medical practitioner for greater representation on the General Medical Council and in the affairs of the British Medical Association. The age is democratic, as witness the tendency to popularise all institutions. A seat in Westminster or in a municipal chamber is no longer the prerogative of any particular class. If there is one thing in the modern movement which requires to be carefully watched, it is that medicine shall not cease to be a profession and become a trade. In labour matters trade unionism is credited with having improved the conditions of labour and of having bettered the lot of the working classes, but the rigid insistence upon time as opposed to piece work, with

uniform wages for all its members, is regarded by some persons as a weak point in its system, since it ties the hands of the best workmen; and by protecting the less fit rather than encouraging the fit men are not stimulated to put forth their best endeavours. Viewed from this standpoint trade unionism would be a levelling down and opposed to what we know of evolution. It would be a matter of regret should any such system be introduced into the profession of medicine. "The survival of the fittest" is one of the most important factors in evolution, but in labour, as in social life, man has interposed and introduced "artificial selection." Much as we may object to placing the unfit workman on the same financial footing as the fit workman, strange to say the aim and object of medicine and surgery are to act frequently in opposition to "natural selection" and the "survival of the fittest." In fact, it is this circumstance which enables us as a profession to live and thrive. All our efforts are directed to the saving of life, and while many valuable lives are saved by medicine and surgery there is otherwise much which when saved cannot from the evolution point of view be regarded as the most helpful or the greatest boon to the race physically. In this, however, we are presupposing that physical supremacy and mental superiority are concurrent, an association which experience does not always confirm.

Let me pass from these commonplace remarks on "Modern Moods and Movements in Medicine" to something of a more purely professional nature. The subject immediately presenting itself for our consideration is

THE ABSORBENT FUNCTION OF THE LUNGS.

The discovery of Koch's bacillus not only corrected and extended our knowledge of the pathology of tuberculosis, it strengthened our belief in the atmospheric conveyance of pulmonary phthisis and of its infectiousness within limits. Heredity and family predisposition were forced to give place to the accidental entrance into the body of a specific microbe, so that the opinion came to be that without the tubercle bacillus there is no tuberculosis. Unlike the pneumococcus and Löffler's bacillus the microbe of tubercle is not an inhabitant of the mouth in normal circumstances. Its presence within the body is unnatural, it becomes a source of irritation and disease. Until recently it was believed that pulmonary tuberculosis mostly spread by aerial infection, and the fact that the lungs were affected more than other organs lent weight to this theory. The presence of a large number of consumptives in a factory or workshop was considered to be the result of infected subjects expectorating upon the floor and of the dried sputum mingling with the dust of the floors rising into the air of the workroom and being inhaled. The occurrence of tuberculosis in other forms than the pulmonary showed that there are other channels than the lungs by which the bacilli gain access to the internal organs. With the exception of children, in whom it has always been regarded as a common avenue of infection, the intestinal canal is by some considered to be the main channel by which both the tubercle bacillus and such particles of dust as carbon enter the system, giving rise on the one hand to pulmonary tuberculosis and on the other to anthracosis. The theory has been advanced by Calmette of Lille, Guérin, Vallée, and others that the portal of entry both for tubercle and dust is not the respiratory passages but the intestinal canal, and so far as anthracosis is concerned appeal is made to experimental feeding by carbon. Although an indirect method, it can be demonstrated that particles of coloured dust introduced into the stomach by means of a tube will reach the lungs and cause pigmentation of these organs. Professor H. J. Hutchens of the Newcastle College of Medicine and myself have not only confirmed Calmette's experiments, but have also demonstrated the wide range of distribution by the lymphatics of fine particles of coal introduced into the peritoneal cavity. While several of the particles were caught by the mesenteric glands others found their way to the lungs and bronchial glands. In other instances carbon particles of considerable size were carried from the peritoneal cavity to such glands as the testes. So free and extensive is the lymphatic circulation and so free also the intercommunication between the lymph and the blood-streams that quite irrespective of the point at which foreign material effects an entrance into the body if time is only given the foreign material is almost sure, sooner or later, to reach the lungs. Of nothing is this more true than of tubercle bacilli. The lungs offer special attractions to the micro-organism of tubercle and yet in Vallée's experiment the introduction of tubercle bacilli into the trachea of calves was not followed by such a severe lesion of the lungs and bronchial glands as when the micro-organisms were swallowed with the food. Experiments point to the mucous membrane of the intestinal canal of young animals being more readily traversed by microbes than that of adults. On the other hand, the mesenteric glands of young animals have a greater power of arresting and fixing the bacilli of tubercle than the glands of older animals, hence the greater tendency for the lungs of older animals to become infected in these circumstances. What applies to tubercle Calmette maintains applies equally to particles of dust, hence the establishment of pulmonary anthracosis through the intestine. But admitting the intestinal method of infection I fail to find reason for giving up my belief in the aerial conveyance of tuberculosis or in the inhalation of dust as the main cause of pneumokoniosis. Like Dr. L. Cobbett of Cambridge, my own experiments point to inhalation of dust as the *principal* means by which pigmentation of the lungs is induced. By the intestinal theory alone it is difficult to explain the presence in the lungs of the particles of steel and stone in steel grinder's and stonemason's phthisis and of the transport of such heavy metallic particles as these from the alimentary canal to the lungs through the medium of the lymphatics. Calmette's experiments, however, are none the less valuable since they show the important part the alimentary canal plays in such a disease of the lungs as tuberculosis.

I have purposely utilised these remarks in order to lead up to another function of the lungs with which we are less familiar. I refer to the absorption of soluble metallic poisons by the pulmonary epithelium. The gastro-intestinal tract has usually been regarded as that by which lead enters the system and gives rise to plumbism. Dissolved in the saliva the dust of white lead is swallowed by the workpeople in the factory, converted into a soluble chloride in the stomach by means of the hydrochloric acid of the gastric juice, and in this form it is probably absorbed. Dust is the enemy of the industrial hygienist. If it is of a non-irritating nature, either physically or chemically, as in the case of white lead, the danger to the person inhaling the dust lies more in the direction of general poisoning than in the setting up of structural changes in the lungs. The fine particles of white lead may be caught in the naso-pharynx and in the bronchi, where by becoming dissolved in the alkaline secretions of the mucous membrane they may cause plumbism. It is to Mr. Kenneth W. Goadby[1] and Dr. F. W. Goodbody that we are indebted for a series of carefully planned experiments which show that after all even in lead workers absorption of inhaled white lead dust by the epithelium of the pulmonary alveoli plays a more important part in the causation of plumbism than absorption by the alimentary canal. These experiments, which have a meaning the obverse of those of Calmette, assign a high value to the deleterious influence of soluble dust which has reached the lungs, for from Goadby and Goodbody's experiments it would appear that plumbism is more rapidly induced by absorption of the metal through the lung than through the intestinal canal. In pulmonary tuberculosis we saw how the pendulum of medical opinion had swung from heredity and predisposition to the operation of an organism, from aerial transmission to infection by intestinal mucous membrane; and in metallic poisoning by dust the swing is now from the alimentary canal to the pulmonary epithelium and the bronchial mucous membrane. So far as plumbism is concerned, it may be said that both the respiratory and alimentary canals are channels of absorption. There is no difference in the type of symptoms produced. The value of these experiments lies in their application, as witness the necessity of keeping down dust in factories, the desirability of men wearing respirators when employed in dusty processes, and of exposing men when working in deleterious atmospheres for only short spells at a time.

VITALITY OF THE HUMAN BODY.

In that delightful book "Principia Therapeutica," Dr. Harrington Sainsbury draws attention to the fact of how even in patients whose internal organs, including the heart, have been for years the seat of slowly advancing disease, life is still capable of being prolonged, consistently, too, with good work being done. The wonder in the circumstances is not that life is brought to a close by disease but that a

[1] The Journal of Hygiene, April, 1909, p. 131.

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patient can go on living. The maintenance of life is largely a question of compensations and of the vicarious stimulation of the various organs of the body. Standing at a post-mortem examination amid the wreck of tissues and the structural changes worked by disease in the internal organs, we are witnesses not so much of failure as of the wonderful vitality of the human body and how it is capable of reacting in disease. Man exhibits after an injury nothing of the local recuperative powers possessed by some of the lower animals, in which amputation of a limb, for example, is followed by the attempt to develop another. The best that can be hoped for in the human body after an injury is a good cicatrix and freedom from pain. Cellular regeneration in man is confined mostly to the connective tissue or mesoblastic layer of the blastoderm, and yet, as Dr. Sainsbury reminds us, there is hardly a cell in the human body which does not retain in one way or another some of the original character of the ancestral protoplasm from which it sprang. In the disintegrating processes of the body as well as in the formative and secretive this functional reversion is constantly being exhibited. While in health it is the work of the kidneys to remove urea from the blood, in disease the mucous membrane of the gastro-intestinal tract can vicariously discharge this function. As an illustration of how organs of primary importance can be seriously affected and yet functionate satisfactorily, the following is *à propos*. I have recently had under my care in the Newcastle Royal Victoria Infirmary an unmarried woman, aged 32 years, who four years ago was an in-patient under the care of one of my colleagues on account of pain in the back and of pus in the urine. In the spring of this year she was readmitted on account of the pain in the loins having become worse, pus being present in larger quantity in the urine, emaciation progressing rapidly, and of life becoming an increasing burden to her. The urine was acid. Carefully searched for, no tubercle bacilli were found in it. By means of the cystoscope and the use of a segregator the urine from each ureter was found by Mr. John Clay, one of our assistant surgeons, to contain pus. The urine from the right kidney contained 3·6 grains of urea per ounce, while in that from the left the urea estimate was 3·3 grains per ounce. On X raying the patient dark shadows indicated the presence of calculi in each kidney. My surgical colleague, Dr. Albert M. Martin, was not over eager to deal with the case surgically, but as the patient was rapidly becoming worse and life was becoming daily more and more threatened I rather pressed the matter, perfectly cognisant of the possible shock to the patient and the reflex result upon the other kidney which an operation might induce. Dr. Martin cut down upon and removed from the right kidney an irregularly shaped calculus of the size of a small Tangerine orange which had filled the pelvis of the kidney. After removal of the calculus I had an opportunity of examining what remained of the substance of the exposed kidney. More unhealthy-looking cortex it would scarcely be possible to conceive. It was unhealthily pale, thin, and in places much diseased; so, too, was what remained of the medulla. The kidney was thereafter closed, replaced, and the superficial wound stitched. For several days after the operation the patient vomited freely, slept none, and was extremely ill, but the urine passed equalled 15 to 30 ounces daily and contained from 45 to 70 grains of urea. As a few days after the operation there was a considerable quantity of urine escaping by the wound in the back, I had some of this urine caught. Notwithstanding the existence of extensive disease in the right kidney, and the fact that this organ had recently been operated upon, there escaped through the incision, a week afterwards, 13 ounces of urine daily, and this contained 5·3 grains of urea per ounce. The point I wish to bring out in this case is not that no reflex influence for harm was exercised upon the left kidney by the operation, but that in the right kidney, which seemed to the naked eye so generally affected, there still remained several areas apparently of comparatively healthy tissue lying side by side with unhealthy structure. Although the patient has still a calculus in her left kidney she has made a most satisfactory recovery, and has gained quite a stone in weight. The case shows us that extensive disease of both kidneys is no barrier to such a serious operation as nephrotomy.

INTERNAL SECRETIONS.

It is not a far cry from 1889 when Brown-Séquard startled the medical world by his recommendation of injections of testicular juice to ward off old age, and yet what a part organotherapy, or the use of "internal secretions," has played in the treatment of disease since then. A new school of physiology has practically arisen. The cells of our internal organs not only remove from the blood-stream material for secretion, for their own nutrition and for the elimination of waste, they add chemical products of their own metabolism to it, products which are necessary for the life and activities of the body generally. Deficiency of some of these substances leads to the malnutrition and degeneration seen in cretinism in children, and to myxœdema in adults. The employment therapeutically of internal secretions has given encouraging results in the treatment of some diseases of a degenerative nature. We are not yet sure whether these animal compounds affect nutrition by acting primarily upon the nervous system or by stimulating into secreting activity co-related glands; or whether as antitoxins they diminish or prevent the action of harmful substances which, having gained access to the body, are rendered inoffensive. That there can be a functional substitution between some glands and a possible coöperation between others is suggested by the inter-relationship which exists between the thyroid and pituitary bodies, parotid gland and testis, thyroid and ovary. Opinions are divided as to whether the thyroid gland and ovary act synergetically or are antagonistic to each other. Occasionally it is observed on the one hand that the more the function of the thyroid gland diminishes the more is that of the ovary exaggerated, and also that as the climacteric period is reached and ovarian activity becomes lessened the thyroid again becomes more active. The hypertrophy of the thyroid gland noticed during pregnancy is not necessarily and solely the result of diminution of ovarian activity.

VACCINES.

It is but a step from the therapeutic use of internal secretions to that of vaccines. We all know the difficulty occasionally experienced in the diagnosis and treatment of patients who, in addition to exhibiting a rise of temperature, are the subjects of enlarged glands with or without palpable enlargement of the spleen. They are the subjects of multiple adenomata, with considerable pyrexia and progressive anæmia. Some of these cases have been diagnosed as tuberculous or malignant, and yet many of them have no connexion with either of these diseases. They present all the characters of an infection of the lymphatic glands, but the most careful scrutiny of the various organs, canals, ears, tonsils, and teeth fails to throw light upon the source of the infection or upon the nature of the disease. From the particular cases I have in view gonococcal infection can be eliminated since there is neither urethritis nor a history of it, and in women leucorrhœa and its congeners can also be eliminated. In every instance, too, the urine betokens a healthy condition of bladder and kidneys. A perambulating typhoid is thought of, but this is bacteriologically disposed of. In fact, it is not until a culture of the patient's blood is made, when streptococci or staphylococci are found, that a diagnosis can be arrived at, and even when this has been attained the original focus of the micro-organism may still remain obscure. Once diagnosed, however, the treatment by means of a vaccine obtained from the patient's own germs is usually most successful. My colleague Dr. T. Beattie has treated some such cases with signal success. Within the last two years I have had four cases of pyelo-nephritis under my care in women the result of auto-infection by means of the colon bacillus. In two of the patients the pyelitis developed six to seven weeks after parturition, when the women had quite recovered from their confinement. By carefully segregating the urine and ascertaining from which kidney the pus came a culture was made from the pus, and the colon bacillus having been found a vaccine was made from a culture of the micro-organism. Once a week an injection of vaccine was administered with in each instance, a gradual reduction in the amount of pus secreted, a disappearance of the pyrexia, and a return to health. The results obtained by vaccine treatment far outweighed anything that was likely to be got by the internal administration of medicines.

ANAPHYLAXIS.

Half a century ago Charles Darwin sought to explain many phenomena which had previously baffled zoologists. Several theories ere his day had been advanced to explain heredity

and to these Darwin added his own. It was Weismann, however, who assigned to "germ plasm" the power of handing on the physical character of individuals along with their mental and other peculiarities. The theory of the germ plasm has thrown quite a new light upon the doctrine of inheritance and has shown the practical impossibility of the transmission of acquired characters. It is not for us at present to inquire into whether germ plasm is capable of being influenced by environment and nutrition. What is of interest to us is the bearing of this as seen in the readiness with which some persons succumb to certain diseases compared with other persons, or, in other words, the part played by idiosyncrasy. In 1902 Professor Charles Richet of Paris drew attention to the subject of anaphylaxis. When working at the physiology of actinia Richet noticed that certain animals, instead of being rendered immune by graduated doses of a poison extracted from actinia, developed an increasing sensibility to it. In the subsequent reactions of an organism to poison one of three things happens: (1) the effect may be less than on the previous occasion; (2) it may be the same; or (3) it may be greater. As medical men we are familiar with the lessening effects which follow subsequent doses of poisons, as in the case of morphine. In other instances once the poison has been eliminated from the body a second dose of the poison is followed by effects in no way different from those exhibited on the first occasion, while in yet other instances subsequent dosage only tends to increase the sensibility of the animal to the poison. It is this increased sensibility which Richet calls *anaphylaxis*. It is exactly the opposite of immunisation—the contrary of *phylaxis* or protection. An anaphylactised animal may be 80 times more sensitive to a particular poison than one in ordinary health and the peculiarity is that the anaphylaxis may continue for as long as five or six weeks. If four weeks after an animal has been anaphylactised some of its blood is injected into a healthy animal, the second animal will within the course of one or two days exhibit the phenomena of anaphylaxis. The serum evidently contains the anaphylactising substance, but this, whatever its nature, is not a toxin, for the animal is well, and remains well, until the merest trace of the original poison is introduced, when it very quickly exhibits the marked hypersensibility observed in anaphylaxis, or it may be new symptoms altogether develop. The bearing of this increased sensibility to poison is seen in the treatment of disease by sera, some of which are known to be antiphylactisant. This is said to be the case with the poison which is generated within the human body by the bacilli of tubercle, but it is not the case with the tuberculin of commerce. I have only touched the fringe of anaphylaxis, for the subject is a large one requiring further investigation before any absolute conclusions can be drawn; but if it helps us to formulate a working theory in regard to the idiosyncrasy of persons to disease something useful has already been gained.

The march of medicine is rapid and there is no halting by the way. With the frequent and irregular calls upon our leisure it is difficult to keep abreast of the times. Men in general practice have greater difficulty in doing so than hospital physicians and surgeons, but if by means of post-graduate courses of study your attention can be drawn, in the brief period you can be spared from work, to recent advances in medical thought and practice and to new methods of surgical diagnosis and treatment, the object sought by these courses is likely to be attained, and you will have the satisfaction of feeling that you are fitting yourselves to cope with the fresh duties and responsibilities which are sure to come in your practice.

SANITARY INSPECTORS' ASSOCIATION.—The north-eastern centre of this association held its annual general meeting at Sheffield on Sept. 11th. Nearly 100 members were present, including Mr. J. T. Quinton, chairman of the association; Mr. T. Pridgin Teale, President of the north-eastern centre; Dr. H. Scurfield, medical officer of health; and Dr. R. P. Williams, medical inspector of schools for Sheffield. Visits were paid to several important industrial premises, and the annual business meeting was held in the town hall. Dr. Scurfield read an instructive paper on Tuberculosis: the Soil and the Seed, and Mr. Gervas Abdy described the work of Tuberculosis Inspection in Sheffield.

THE TREATMENT OF LUPUS ERYTHEMATOSUS.*

BY SIR MALCOLM MORRIS, K.C.V.O., F.R.C.S. EDIN.,
CONSULTING SURGEON TO THE SKIN DEPARTMENT, ST. MARY'S HOSPITAL; SURGEON TO THE SKIN DEPARTMENT, SEAMEN'S HOSPITAL.

THE treatment of lupus erythematosus is unsatisfactory because so little is definitely known as to its etiology, and because of the confusion which still exists as to the nature of the disease. Many varieties have been described by different observers. It may be well for the sake of clearness to explain at the outset that I recognise two principal clinical types: (1) the *eruptive*, corresponding to Kaposi's "aggregate" or "discrete" form; and (2) the *slow-spreading*, corresponding to that dermatologist's "discoid" form. Kaposi's third variety, characterised by constitutional symptoms of intense severity and often ending in death, has never come under my notice, and only exceptionally have cases of the kind been recorded by English dermatologists. (Short[1] recorded such a case and MacLeod[2] reported a fatal case associated with nephritis.) The "erythematoid" form of lupus vulgaris described in 1891 by Leloir seems to be a phase in what used to be called the "transformation" of lupus vulgaris into lupus erythematosus. The process seems in reality to be nothing more than the transformation of lupus vulgaris erythematoides into a nodular raised infiltration.

A few words must be said as to the etiology of the disease on account of its bearing on treatment. Several dermatologists, notably Sir Jonathan Hutchinson, hold that lupus erythematosus is essentially tuberculous in origin. Boeck has expressed the view that although the disease is certainly not due directly to the action of the tubercle bacillus on the skin, it is produced by the circulation in the blood of special toxins which are particularly apt to develop in persons of tuberculous constitution.[3] According to him lupus erythematosus is "the expression of a marked tuberculosis of the skin." The weight of opinion is, however, against the doctrine that lupus erythematosus is of tuberculous origin. My own view is that there is no evidence, clinical or pathological, proving that the disease is tuberculous in the sense of a local bacillary infection. MacLeod[4] says that he has never seen or heard of a case in which an injection of tuberculin has produced lupus erythematosus. The disease is, however, aggravated by association with tuberculosis which is not infrequent. The theory that it is a toxæmia of some kind is gaining ground. Sequeira and Balean,[5] who made an exhaustive pathological examination of 71 cases, noted the frequent association of albuminuria with the more active forms of the disease. In one case they had an opportunity of making a post-mortem examination. The urine had been loaded with albumin and contained casts and blood; in the kidneys evidence of recent nephritis was found. From this fact the authors were inclined to believe that in such cases the inflammation of the kidneys is set up by the excretion of toxins, as happens in exanthematous fevers. Galloway and MacLeod[6] also hold that there is some evidence showing an association of lupus erythematosus with chronic nephritic toxæmia. They suggest that underlying the disease as its cause are in all probability many forms of blood poisoning in susceptible subjects, of which perhaps not the least common is the absorption of poisons produced by pyogenic organisms. In addition to the vaso-motor disturbance caused by the toxin there may possibly be a tendency to the ready production of paralysis of the vaso-motor mechanism. In a large proportion of cases of lupus erythematosus the patient has presented circulatory anomalies of one kind or another, such as purple colour of the hands, a tendency to chilblains, "dead fingers," and Raynaud's disease. These conditions may actually develop into lupus erythematosus. The disease appears to be essentially a chronic inflammation of the skin, local in origin, prone to occur in parts, such as the hands,

* Read in the Section of Dermatology, International Medical Congress, Budapest, September, 1909.

[1] British Journal of Dermatology, 1907, vol. xix., p. 271.
[2] Ibid., 1908, vol. xx., p. 162.
[3] Report of Vienna Congress, British Journal of Dermatology, vol. iv., 1892.
[4] THE LANCET, Oct. 31st, 1908, p. 1271.
[5] British Journal of Dermatology, 1902, vol. xiv., p. 267.
[6] Ibid., 1903, vol. xv., p. 81.

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feet, and nose, where the circulation is liable to be injuriously affected by exposure to cold; or in the so-called "flush area" of the face, where in many persons vaso-motor disturbance results from slight causes, hence the relative frequency with which women, subject as they are to circulatory disturbance at the menstrual periods and at the menopause, are attacked by lupus erythematosus.

Vaso-motor disturbance may cause a predisposition to toxic infection, but neither the fact of such infection nor its nature has been absolutely demonstrated. No specific micro-organism has been found to the action of which the origin of the disease can be traced. But it is not unlikely that acutely inflammatory manifestations may be due to the invasion of the streptococcus of erysipelas or some other organism.

Lupus erythematosus is sometimes associated with osteo-arthritis. I have at present a man under my care who, after suffering for many years from osteo-arthritis, has within the last few months become the subject of lupus erythematosus of both ears and the cheeks.

The obscurity which surrounds the etiology of the disease renders it difficult to lay down any general principles of treatment. The intensity of the disease varies in a cyclical manner, but after a more or less protracted period it tends to spontaneous recovery. In this the effect of treatment is not always distinctly traceable.

Before dealing with the therapeutic side of the question I wish to lay emphasis on a point which I think of great practical importance. This is that the word "lupus," which has a harmful effect on the mental state of patients and may be misleading to practitioners, should be eliminated from the name in general use. *Erythema atrophicans*, as proposed by me many years ago, or *ulerythema centrifugum*, which is the name given it by Unna, would have the practical advantage of dissociating it altogether from the more formidable and true tuberculous affection.

There is no specific for lupus erythematosus. Each case requires to be dealt with in accordance with its individual peculiarities. I can only indicate here the general lines which I follow. The guiding principle is that internal remedies should be used when the disease is associated with vaso-motor disturbance in the extremities, and where there is evidence of auto-intoxication by poisonous substances circulating in the blood. External applications are to be relied upon only when no signs of systemic disturbance exist. The treatment is therefore *constitutional* or *local*; often both may be required. Any disorder of metabolism, or disease of the kidney or liver, must be dealt with by appropriate measures. The bowels should be carefully regulated by means of saline aperients in the morning, together with occasional small doses of calomel. Antisepsis of the mouth and teeth is very important; I have seen cases in which toxæmic symptoms were distinctly benefited by attention to strict cleanliness of the mouth. Anything that is apt to give rise to flushing of the face is contra-indicated; for this reason alcohol should be absolutely forbidden; curry and other heating condiments should be forbidden. Coffee, tea, and tobacco should be avoided. Conditions indicative of lowered vitality should be treated on general medical and hygienic principles. Where the circulation is defective, as evidenced by liability to chilblains and the other conditions already enumerated, the patient should if possible spend the winter in a warm climate. The diet must be carefully regulated so as to minimise the risk of disordering the digestion or loading the intestine with materials that may form a favourable soil for infection. Salol in doses of 10 grains three times a day may be given after each meal; salicin and bismuth in tablet or in pill are often useful. They may be combined with quinine, but this drug should not be given in cases where there is a tendency to chilblain circulation. I have not observed any particular benefit from arsenic, which is recommended by some, or digitalis, which is also recommended. Belladonna is of use in middle-aged or elderly people. Ergotin I have not found serviceable. Where there is any abnormality of circulation I give ichthyol internally, as recommended by Unna; it not only regulates the circulation, but acts as an intestinal disinfectant and prevents the formation of gas. I begin with a dose of 2½ grains after each meal, increasing it up to 10 or 15 grains; the administration of the drug should be stopped or diminished if it causes eructation, as this shows that the stomach is receiving more than it can digest. In certain cases at the period of the menopause, when ichthyol has failed, I have given small doses of opium, beginning with $\frac{1}{30}$th of a grain in pill three times a day and gradually increasing up to doses of one-fourth of a grain. I may remark that I have also found opium given in this way useful in regulating the circulation when there is a tendency to chilblains. Adrenalin may be of use for the same purpose. In some very acute cases of lupus erythematosus I have had good results from the use for short periods of exclusively meat diet washed down by copious draughts of hot water. This cleanses the intestinal tract by preventing the formation of gas which is produced by farinaceous substances, and promotes the elimination of waste products by flushing the kidneys. In acute cases the meat and hot water may be continued for ten days at a time. I have seen a case of Raynaud's disease cured entirely by this treatment combined with rest in bed for three weeks. Calcium chloride has been found by some beneficial in the treatment of chilblains, and on the ground of its alleged action on the circulation it might possibly be of advantage. The high-frequency current is often of service, chiefly in promoting metabolism and maintaining a healthy state of the intestine; I have sometimes used this method with advantage in subacute cases. In general terms it may be said that the patient should lead a healthy outdoor life as far as circumstances will allow.

In regard to local treatment, it may be said generally that in the early stages active interference often does harm. Here careful study of the idiosyncrasies of the patient and the peculiarities of the disease is especially necessary. In the hyperæmic stage, cooling lotions (calamine, subacetate of lead, &c.) should be applied. No ointments should be used as a rule. Hebra's soap (sapo mollis virid. ℥ii., sp. vini ℥i.) rubbed in with flannel or lint is useful for the removal of scales and the protection of the surface. Ichthyol in the form of a lotion has almost a specific action on the circulation, and in my experience is the most useful of local remedies. Among other topical applications which may be found beneficial in individual cases are resorcin (10 per cent. in collodion); salicylic acid (3 to 6 per cent. in collodion), and pyrogallic acid, applied in the form of a plaster. These applications should be used when the disease is very chronic. Resorcin in particular is apt to cause blistering if used in strength; it should therefore never be applied to inflammatory patches. In chronic cases also I have found the constant application of a strong solution of ichthyol the best remedy. Iodine liniment is also useful, especially when combined with quinine internally. Compression by collodion I have not found of much use. In the case of small patches, linear scarification or light touches of the thermo-cautery often give good results. A dressing of iodoform or a salicylic acid plaster mull should be applied afterwards. In one case, that of a woman aged 60 years who had a circumscribed patch on the bridge of the nose for four or five years, I excised the diseased part. A good scar was left and there was no recurrence. In chronic cases I have used the Finsen light with success. In acute cases the light treatment does harm, and its effects should always be carefully watched. These agents, which are apt to be injurious in the early stages, are particularly useful in the later stages, when there is thickening of the integument. Lassueur of Lausanne[7] gives details of 17 cases which he has treated with the X rays. In only six was a cure effected. In two there was no result. In the rest there was more or less improvement, but in most of these relapse occurred. In my hands the X rays have proved uncertain.

Radium may be applied to limited areas. Wickham and Degrais,[8] who seem to hold that lupus erythematosus is a form of tuberculosis, say that radium has in a certain number of cases "given very satisfactory results." Relatively high strengths are required and the application must be carried a considerable distance beyond the edge of the patch. The inflammatory reaction is described as "somewhat sharp." They say that recurrences and new developments occur always at the border of the diseased area. In one case they treated the disease on one side of the face by radium applied in the usual way; on the other by intradermic injections of radioferous water (*eau radifère*). On the side treated by the ordinary application there was intense reaction

[7] Archives d'Électricité Médicale, April 10th, 1909.
[8] Radiumthérapie, Paris, 1909, p. 268.

with destruction of tissues followed by repair. On Jan. 16th the scar was excellent, but on June 22nd there was recurrence at the circumference of the lesions. On the other side, after ten injections there was no visible reaction, but a fading, then disappearance of the patches; this was followed by the formation of a "whitish scarry tint." On June 22nd there was no sign of recurrence. But the authors admit that this observation requires to be confirmed by further experience. I have treated several cases in which old patches have been left after other treatments have failed. I have applied radium for periods of 15 minutes at a time, lightly screened with aluminium only. The results have been satisfactory. Certain obstinate cases are benefited by ionisation with zinc or copper.

To sum up: the object aimed at in using these agents is to set up a certain amount of local reaction. Hence they should never be used when there is acute inflammation. At present there are no rules to guide us in the selection of the particular agent; one will succeed where another fails. They must therefore be used more or less empirically.

Harley-street, W.

A STUDY OF SPINAL ANÆSTHESIA IN CHILDREN AND INFANTS.

FROM A SERIES OF 200 CASES.

BY H. TYRRELL GRAY, M.A., M.C. CANTAB., F.R.C.S. ENG.,

RESIDENT MEDICAL SUPERINTENDENT, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, LONDON.

SINCE Bier in 1898 introduced spinal anæsthesia to the notice of the profession the subject has attracted considerable attention, especially on the continent, and more recently in this country. The technical methods have been greatly improved, and systematic study together with wider experience have increased the safety of the procedure. The relative value of spinal and general anæsthesia is still *sub judice*, though, from a theoretical aspect, the former is distinctly to be preferred in cases where it is applicable; for in the administration of spinal anæsthesia more of the nervous system is exempt from unnecessary paralysis, and there should be no involvement of the higher centres. In actual practice, while the younger method possesses undeniable and important advantages over general anæsthesia there are disadvantages in its application which will only be eliminated by a careful study of the principles on which depends the action of the drugs employed in the spinal theca. The safety of spinal anæsthesia seems to me to rest largely on the extent to which the surgeon can *control* and *limit* the action of the drugs employed. In this respect Mr. A. E. Barker's [1] methods are a great advance on those employed on the continent, for he has made a definite attempt to place the localisation of the anæsthesia in the hands of the surgeon by the employment of gravity, and it is this opinion which led me to adopt his methods in my first 100 cases.

Though spinal anæsthesia has been administered to children in isolated cases a systematic study of its effects on children and infants has not hitherto been made so far as I am aware. Deetz in Bier's clinic has had some success, while Preleitner in Professor Escherich's clinic [2] reports a trial of the method in 40 children. The experience at the latter clinic does not seem to have been very encouraging. There seems to be a general impression that children are bad subjects for spinal anæsthesia. Professor Fraenkel, speaking in the discussion on Preleitner's paper,[3] emphasises the fact that in this method there was no elimination of the psychical factors tending to frighten the child and of the dread of the unpleasant situation, and that for this reason the method had already failed to obtain a foothold in the surgery of children. Other speakers also emphasised the satisfactory effects of general anæsthesia in children in whom, for this reason, spinal anæsthesia was, in their opinion, contra-indicated. Mr. Barker also states [4] that this method should not be employed in obviously nervous and excitable people or in *children*.

These views are entirely contradicted by my experience. From the psychical aspect no more suitable patients for spinal anæsthesia could be found, since ignorance is their safeguard against "panic," and it may be stated generally that the younger the children the more satisfactory are they in this respect. Exception may perhaps be made to this statement in the case of children between the ages of two and five years; it is at this age that trouble is most likely to be experienced in keeping the patient quiet, though in the whole series of 200 cases on one occasion only did I encounter this difficulty to any marked extent. In no instance was general anæsthesia resorted to on this account. Further, statements as to the satisfactory nature of general anæsthesia in children require qualification: for there are many operations—notably on the abdomen, bones, and the larger joints—the ultimate results of which, from their length and severity, have been greatly prejudiced by the additional strain and unpleasant sequelæ of general anæsthesia. It is in such cases that spinal anæsthesia is to be specially recommended. In the whole series there has been no selection of cases; spinal anæsthesia has been administered whenever the method was applicable, with a view to ascertaining indications or contra-indications for its use.

I.—A STUDY OF THE FIRST SERIES OF 100 CASES.

I have been personally responsible for the anæsthesia in every case reported, and Mr. Barker's stovaine-glucose solution was used throughout this series. The composition of the fluid is: Stovaine, 2½ per cent.; glucose, 2½ per cent.; and water to 100.

Technique.—A very great deal has been written about the technique of puncture and injection of the fluid, and numerous rules have been laid down as essential to success. As regards the lumbar puncture, very many authors have devoted pages to laying stress upon the necessity of keeping the needle straight and entering it exactly in the middle line. These rules are modelled on the precepts laid down by Bier [5] and Donitz.[6] I find, however, in a paper by Bier and Donitz [7] that at this time they entered the needle one centimetre from the mid-line, directing it upwards and inwards, a custom which apparently they no longer follow. The dangers of puncturing in other than the mid-line are stated to be that of wounding the nerves of the cauda equina, hæmorrhage, and, if lumbar anæsthesia is the object, unilateral effects from the needle or cannula penetrating amongst the nerve-roots of one side. Kronig [8] states that it is only after lateral puncture that cases of nervous affection due to injury of the nerve fibres are observed.

These dangers have, I am convinced, been greatly exaggerated, and in many accounts a simple procedure, easily carried out with the most ordinary care, has been converted into a major operation requiring special skill and practice. In some hundreds of lumbar punctures done for various objects on patients of all ages (most of these have, however, been on children) I have invariably adopted the same procedure. The site for puncture is chosen by placing the left forefinger between the two spinous processes at the level selected; the needle is then entered so that its shaft is just touching the pulp of the indicating finger (i.e., to one side of the spinous processes) and directed very slightly upwards and inwards. The needle is pushed smartly inwards, and in its course can be felt to penetrate two resistances: (1) the ligamentum subflavum; and (2) the dura mater. The stilette is withdrawn and a free flow of fluid practically always results then or on slightly rotating the needle.

By this means the needle, though entered laterally in the skin, punctures the dura in the midline. It has been a very unusual experience to see blood issuing from the needle, while the nerves have been touched by the needle or cannula on three occasions; once while performing a lumbar puncture on a man who had fractured the base of the skull, when respiration ceased for a considerable time, a phenomenon which could be reproduced by a suitable movement of the needle. The other two occasions when this accident occurred were in administering spinal anæsthesia to two children. In

[1] Brit. Med. Jour., March 23rd, 1907; and Feb. 1st and August 22nd, 1908.
[2] Münchener Medicinische Wochenschrift, vol. lii., 1905, p. 1368.
[3] Loc. cit.
[4] Brit. Med. Jour., March 23rd, 1907.
[5] Bier: Centralblatt für Chirurgie, vol. xxxiv., 1907, p. 95.
[6] Donitz: Ibid., and vol. xxxiii., 1906, p. 105.
[7] Bier and Donitz: Münchener Medicinische Wochenschrift, vol. li., 1904, pp. 593-596.
[8] Deutsche Medicinische Wochenschrift, 1906, p. 955.

both instances the child gave a piercing yell and became rigid and the course of the pain followed accurately the distribution of a spinal nerve. Neither of these children developed any unpleasant sequelæ and the anæsthesia in both was bilateral and perfectly satisfactory. Clearly, then, in my experience, this accident has been rare, and I think it has too often been made a scapegoat for unpleasant sequelæ without sufficient evidence.

The following is the routine which has been most successful. The patient is laid on the table on his right side with the back well rounded, and this position is maintained by the sister or nurse who is most familiar with the child and whom he trusts. This latter precaution makes a considerable difference to a child's behaviour in routine operations, while in cases of emergency no trouble is ever experienced. The whole back is cleansed, in the event of a second injection being necessary, and the child is placed on a sterile towel. Since the skin is the only sensitive structure encountered in a well directed puncture, it is first rendered anæsthetic by a hypodermic injection of eucaine 3 per cent. (20 minims). There is rarely any disturbance from the prick of a very fine needle. The instruments for injecting the stovaine are those designed by Mr. Barker, who has given full directions for their use.[9]

The lumbar puncture is now made in the manner already described; the cannula, affixed to the syringe, is gently pushed down the hollow needle (it is most essential that the depth of the needle should be kept constant), the injection given quickly, and the needle as quickly withdrawn. (It is a matter of no importance whether the injection is given forcibly or gently.) The child is then turned over on his back on to the sterile towel and the pelvis raised on a pillow to a height proportionate to the required level of anæsthesia. The majority of children will hardly be aware that the second or lumbar puncture has been made. In older children it is best to explain what is about to be done, especially if they are of a nervous disposition. The advantages of entering the needle to one side of the spinous processes are sufficiently marked to justify the procedure. In the first place speed is all-important in the case of children, in whom the resulting disturbance is in inverse proportion to the rapidity with which the injection is made.

Lateral puncture—(1) gives more room and so simplifies and hastens the procedure; (2) protects the needle against snapping or bending if the child should suddenly extend the spine; and (3) diminishes the possibility of touching the sensitive periosteum of the lamina and thus causing pain and disturbance at the time and pain after the operation.

The preparation of the operation area is commenced directly the injection has been made, and when this is complete the operation may be begun. The child's face is covered with a towel so arranged that he can see the sister who holds his hands and amuses him. Many children are given a sponge cake or a bottle according to their age and may thus be kept quiet and happy during the operation. It is generally agreed that the injection of stovaine should not be made until a free flow of cerebro-spinal fluid has been obtained from the needle, and that if the fluid is bloodstained the dose should be withheld,[10] for a satisfactory anæsthesia will not result. This is true enough in the main, but if, after patience and perseverance, a free flow of fluid cannot be obtained, but only slow drops (or if slightly bloodstained fluid only appears) I consider that the injection *should* be attempted before making another puncture provided cerebro-spinal fluid has been seen. I have encountered this class of case on two or three occasions, when, in spite of failure to obtain a free jet, a perfectly satisfactory anæsthesia has resulted from the injection. I have concluded, therefore, that in isolated cases it will not be possible to get a free flow of cerebro-spinal fluid, though these will rarely be met with. Donitz[11] suggests that when, in spite of all efforts, a scanty flow of cerebro-spinal fluid is obtained, this is an indication for using a larger bulk of fluid for injection. Mr. H. P. Dean[12] is of the same opinion, and increases the bulk of fluid by adding saline solution.

Age.—In this series the age of the children has varied considerably, the youngest being an infant aged three months, and the oldest a girl aged 13 years.

TABLE I.—*Operations.*

Under 6 months	5 cases.
6 months to 1 year	8 ,,
1 to 2 years	12 ,,
2 to 5 ,,	25 ,,
5 to 12 ,,	49 ,,
Over 12 ,,	1 ,,

It will be seen by the foregoing table that there were 25 cases in infants under 2 years, 25 cases from 2 to 5 years, and 49 cases from 5 to 12 years. The one child aged 13 years was not a patient at the Hospital for Sick Children, and spinal anæsthesia was administered to her owing to the prolonged vomiting which hitherto had followed general anæsthesia, and with infinitely more satisfactory results.

Nature of operations performed.—Of the operations performed 60 were on the trunk and 40 on the extremities (see Table II.). It will be seen that there were four instances where I failed to obtain any anæsthesia at all.

TABLE II.—*Nature of Operations.*

Operations on trunk:—	
Abdominal, various	3 cases.
Appendicectomy	3 ,,
Cystoscopy	3 ,,
Hernia and hydrocele (radical cure)	33 ,,
Hernia, strangulated	3 ,,
Intussusception	5 ,,
Ileocolostomy	1 ,,
Psoas and iliac abscess	3 ,,
Rectovaginal fistula	1 ,,
Sigmoidoscopy	1 ,,
Various	4 ,,
	60 ,,
Operations on extremities—	
Arthrectomy and excision, hip-joint	5 cases.
Arthrectomy and excision, knee-joint	7 ,,
Arthrodesis of tarsus	1 ,,
Osteotomies	2 ,,
Osteomyelitis, acute	1 ,,
Tarsectomy	5 ,,
Tendons, operations on	8 ,,
Various: scraping abscesses and sinuses of joints	7 ,,
Failure to obtain anæsthesia	4 ,,
	40 ,,
Total	100 ,,

The first of these failures was in the case of a child, aged two and a half years, suffering from lumbar abscess due to spinal caries. The curvature was situated in the lumbar region and the puncture was made below the obvious seat of disease, as I was anxious to determine whether spinal anæsthesia was contra-indicated in such cases. Two injections failed to produce any anæsthesia at all. There is no question that the needle was in the theca. In another case of lumbar caries with psoas abscesses the first injection could not be made to ascend high enough for satisfactory anæsthesia, in spite of the adoption of the exaggerated high pelvis position. It was only after waiting a considerable time and with difficulty that the second dose was satisfactory. (There was one further failure in a case of the same class in my second series. On this occasion the perineum only could be anæsthetised.) It seems fair to conclude, therefore, that children with any spinal caries are unsuitable for spinal anæsthesia, even when the puncture can be made through a healthy part; and the same should hold true for children who have recovered from posterior basic meningitis, for in these patients adhesions within the spinal theca are commonly encountered, so that anomalous effects would in all probability result. The three other failures all occurred together, and with the same box of stovaine. The first two of these were both submitted to general anæsthesia although the second of them had had a successful spinal anæsthetic only four days previously. The third case I sent back to bed until the following day when I repeated the attempt with a new box of stovaine; a perfect anæsthesia of an hour's duration resulted from the first injection of the same quantity of solution as that given on the previous day. These failures must be attributed to the fact that the stovaine had been kept too long by the makers and lost its potency, for the last case had tingling sensations in

[9] Vide supra.

[10] Bier and Donitz: Münchener Medicinische Wochenschrift, vol. li., 1904, pp. 593-596. Centralblatt für Chirurgie, vol. xxxiv., 1907, p. 94. Kronig: Loc. cit.

[11] Verhandlungen der Deutschen Gesellschaft für Chirurgie, 1905, pp. 525-548.

[12] Brit. Med. Jour., 1907, vol. ii.

the feet which never amounted to anæsthesia; they can hardly, I think, be attributed to faulty technique in view of the foregoing facts, especially when we know how the drug loses its value with keeping. General anæsthesia was therefore administered in three out of 100 cases where spinal anæsthesia had failed. In two other cases a whiff of chloroform was used at the end of the spinal anæsthesia when the effects of the stovaine began to wear off, in one case for the skin sutures and in the other for the termination of the operation also. Apart, therefore, from the case with spinal disease on one occasion and the defective quality of the stovaine on the other, there has been no failure in the first series.

Dosage.—The amount of stovaine administered in each case has been more or less proportionate to the age of the patient, the length of the operation, and the level of anæsthesia required. A study of the tables, by means of which a record of each case has been kept, shows how far definite statements can at present be made. As regards the level to which the paralysis is required to ascend, it can be definitely stated that if the puncture be always made in the same intervertebral space the dose must be proportionately increased for a high level and may be similarly decreased for a low level of anæsthesia. For example, if a puncture be made between the third and fourth lumbar spines and anæsthesia of the foot is required, 1 cubic centimetre (or 2·5 centigrammes of stovaine) would in a child of six years produce complete paralysis for one hour. The same dose, however, if the pelvis be appropriately raised would only paralyse the upper abdomen for 45 minutes. In other words, the higher the fluid ascends the smaller is the amount of it which reaches the nerve roots, and therefore to induce paralysis to a high level (for example, in abdominal work above the umbilicus) three points must be remembered: (1) to employ a larger dose of stovaine; (2) to puncture in a higher intervertebral space; and (3) to use the high pelvic position immediately the injection has been given, always remembering to keep the shoulders raised a little.

Chaput[13] emphasises the important relation of the dose to the height of the anæsthesia. In producing high anæsthesia it should further be borne in mind that above the area of absolute anæsthesia is a zone, of varying extent, of relative anæsthesia which I have known to extend over the scalp. Thus it is seen the anæsthesia lasts longer below than above, and it is also true that the onset is from below upwards, while the recovery takes place from above downwards, muscular power returning before sensation.

I cannot, however, think it right ever to make the puncture above the interspace between the first and second lumbar vertebræ, though this practice is adopted by some surgeons as a routine (Avramesco[14]). This author punctures between: (1) the third and fourth lumbar spines for operations on the perineum, external genitals and anus; (2) the first and second lumbar spines for operations on the inguinal region and lower extremities; (3) the ninth and tenth dorsal spines for operations on the abdomen below the umbilicus; and (4) the sixth and seventh dorsal spines for operations on the abdomen above the umbilicus. I have found the interval between the third and fourth lumbar spines the most suitable site for puncturing in routine cases and enter the needle above or below the level according as a higher or lower paralysis is required.

The Relation of the Dose of Stovaine to the Length of Anæsthesia Produced.

TABLE III.

A.—*Age Six Months and Under.*

Dose.	No. of cases.	Recovery not stated.	Recovery.
2/5 c.c.	1	1	—
2½/5 c.c.	3	1	1 hour.
3/5 c.c.	1	—	Over 1 hour.
Average $\frac{21/2}{5}$ c.c.—i.e., 0·012 grm. stovaine.	5	2	Over 1 hour.

[13] Société de Chirurgie de Paris, Oct. 12th, 1904.

[14] Avramesco: Revue Neurologique. THE LANCET, 1901, vol. i., p. 637.

B.—*From Six Months to 1 Year.*

3/5 c.c. was administered to all but one child who had 3/5 c.c. and 4/5 c.c. in consecutive doses. Each of these produced anæsthesia for three-quarters of an hour. Rest varied from—

1 hour ... ... 2 cases.
1¼ ,, ... 3 ,,
2 ,, ... 1 case (child very ill).

Average: 3/5 c.c.—i.e., 0·015 grm. stovaine.
Average time; 1 hour 10 minutes.

C.—*From 1 to 2 Years.*

Dose.	No. of cases.	Recovery not stated.	Recovery.
3/5 c.c. = 0·015 grm. stovaine.	7	0	Lowest ½ hour. Highest 1½ hour. *Average* over 1 hour.
4/5 c.c. = 0·02 grm. stovaine.	5	Said to be 2½ hours in one case (omitted).	3 cases, 1 hour.

D.—*From 2 to 5 Years.*

Dose.	No. of cases.	Recovery not stated.	Recovery.
3/5 c.c. = 0·015 grm. stovaine.	3	0	1 case, 30 min. 2 cases, 40 ,, *Average* 36 ,,
4/5 c.c. = 0·02 grm. stovaine.	12	4	1 case, 1½ hour. 4 cases, 1 ,, 3 cases, ½ ,, *Average* 55 min.
5/5 c.c. = 0·025 grm. stovaine.	3	0	1 case, 1½ hour. 1 case, 1 ,, 1 case, 1½ ,, *Average* 1½ ,,
5½/5 c.c.	1	0	1½ hour.
6/5 c.c. = 0·03 grm. stovaine.	3	0	2 cases, 1 hour 10 min. 1 case, 1 hour. *Average* over 1 hour.
8/5 c.c. = 0·04 grm. stovaine.	1	0	1 hour (given in 2 separate doses; case of spinal caries).

E.—*From 5 to 12 Years.*

Dose.	No. of cases.	Recovery not stated.	Recovery.
3/5 c.c. = 0·015 grm. stovaine.	1	1	—
4/5 c.c. = 0·02 grm. stovaine.	2	0	1 case, 1½ hour. 1 case, 1 hour 10 min. *Average* 1¼ hour.
5/5 c.c. = 0·025 grm. stovaine.	10	1	3 cases, 1 hour. 3 cases, 1½ ,, 1 case, 50 min. 1 case, 45 ,, 1 case, 50 ,, *Average* 1 hour.
6/5 c.c. = 0·03 grm. stovaine.	23	5	3 cases, 40 min. 6 cases, 1 hour. 5 cases, 1½ ,, 4 cases, 1½ ,, and over. *Average* 1¼ hour.
6½/5 and 7/5 c.c. = 0·035 grm. stovaine.	7	1	3 cases, 1 hour. 2 cases, 1½ ,, 1 case, 1½ ,, *Average* 1½ ,,
7½/5 and 8·5 c.c. = 0·04 grm. stovaine.	4	1	1 case, ½ hour. 1 case, 1½ ,, 1 case, 1½ ,, *Average* 1 hour 10 min.

A study of Table III., sections A, B, C, D, and E, shows how far the quantity of the drug administered bears any direct relation to the length of time the paralysis lasts. The estimation of the time after injection at which recovery ensues is open to a great many fallacies, and, in routine hospital work, when the return of sensation and movement was noted by many different sisters and nurses in the wards, any great degree of accuracy could not be expected. For purposes of comparison the same routine was followed in all cases—the return of power was indicated by the presence of movement in the whole of the lower limbs, and the return of sensation tested by the response to the prick of a pin.

Without recapitulating the facts set forth in the accompanying tables, these, I think, bring to light several points worthy of notice. 1. There is a certain variability, within limits, in the length of anæsthesia produced by a given dose in several patients of the same age. 2. In a series of cases the length of anæsthesia is in direct relation to the amount of the drug injected, but only within certain limits. 3. The surgeon may depend on from three-quarters to one hour of operable anæsthesia. A comparison of the different items in each section and of similar items in the different sections of Table III. will confirm these statements.

The question arises as to the reasons for the variability of the effects of the same dose in similar patients. This variability will be found to depend on several facts: (1) the technique of administration—a greater uniformity has been obtained with increased familiarity with the methods adopted; (2) the bulk of fluid, the strength, and probably the nature of the drug employed; and (3) certain factors unknown, or at least problematical, to which I shall refer in the study of my second series of cases. In all but seven cases operable anæsthesia was present within five minutes of the injection though anæsthesia was not usually complete until from eight to ten minutes. For example, the presence of some muscular power or sensation to heat and cold does not hamper the commencement of an operation, and these disappear after painful sensation. In one instance excision of the knee-joint was done under spinal anæsthesia, and no part of the operation, including the sawing of the bones, was felt by the patient; when, however, during the progress of the operation, hot saline was poured over the wound he screamed, "You're burning me." Of the seven cases in which the commencement of the operation had to be delayed for more than five minutes in three the time was 7, 8, and 15 minutes respectively; the last case had extreme scoliosis and there may have been some error in the technique of the injection to account for the delay. In infants under two years the delay tends to be less, for many of these have been paralysed in one or two minutes. I have made it a rule that if no paralysis has supervened in *ten minutes* after the injection a second dose should be given as the fluid has not reached the subarachnoid space.

The approximate amount of cerebro-spinal fluid withdrawn before the injection of stovaine has been recorded in the majority of cases, though actual measurements were only taken in a few. The reports are sufficiently accurate to determine whether there is any advantage or disadvantage in withdrawing a fair quantity. 1. As regards the general condition of the child, the most careful analysis of the tables has failed to detect any change attributable to the withdrawal of three or four drachms of cerebro-spinal fluid previous to injection of stovaine. 2. The influence of withdrawing this amount on the course of the anæsthesia deserves a word. A study of the tables gives no definite information on this point; indeed, it could not be conclusive where there are clearly so many other factors at work. My own impression, however, is that the withdrawal of two or three drachms of cerebro-spinal fluid previous to giving the injection tends to prolong the anæsthesia, and I now always adopt this procedure. In this connexion it is interesting to note that Mr. Dean[15] considers that the sudden diminution of cerebro-spinal pressure may be responsible for the lesions of the ocular nerves (especially the sixth) which have occasionally been reported as occurring after spinal anæsthesia. This view receives no support from my series of cases. Headache also might presumably be attributed to the same causes, but without any evidence, so far as I can ascertain. Mr. Dean, however, states that the withdrawal of some cerebro-spinal fluid increases the certainty of the anæsthesia.

Extent of the anæsthesia.—If the table of operations be reviewed it will be seen that these embrace a considerable variety of cases. For the older children the paralysis may be approximately limited according to necessity, but for infants and smaller children it has been found advisable to paralyse to the costal margin or at least the umbilicus in the majority of cases, and for abdominal work to between the costal margin and the nipples. In hernias also it is advisable to induce paralysis to the costal margin, for it may be necessary to ligature omentum; more than once this operation has been performed under a low anæsthesia, all sensation being absent until the omentum was ligatured, when the child cried out with pain. In operations involving the alteration of the patient's position it is advisable to preserve, as far as possible, the original posture, though a deviation from this will not influence materially the course of the anæsthesia. In operations on the tendons of spastic cases spinal anæsthesia is not suitable, for the complete muscular flaccidity obtained increases the difficulty of estimating the amount of lengthening necessary. Heart disease, if compensated, is no contraindication to the use of stovaine, and I have had no experience in uncompensated cases. In cases of suppuration in the upper abdomen and under the diaphragm it must be remembered that the action of this muscle is probably hampered (the same holds true in cases of great abdominal distension). Care must therefore be taken to paralyse the intercostal muscles as little as possible. For this reason I am sure it is quite unjustifiable to operate within the thorax, in cases of empyema, pyopericarditis, &c., under spinal anæsthesia, and no such operations have been performed in my series. This anæsthesia, however, has been frequently employed for these operations both in this country and on the continent.

I now propose to consider briefly the complications and sequelæ noted in this series of cases.

1. *Vomiting* may occur while under the influence of the anæsthesia or after recovery has taken place. 30 cases out of the hundred either vomited or retched during the operation or after recovery from the anæsthesia. These vomits were usually copious and occurred between 10 and 20 minutes after the injection (usually about 15 minutes). The attack, without exception, passed off in less than five minutes, and rarely lasted more than a minute or two in the majority of cases. Of these 30 cases:—

21 vomited during the operation ...	One vomit	13 cases.
	Two vomits	1 case.
	Several vomits	4 cases.
	Brandy returned	1 case.
	No details	2 cases.
6 retched only during the operation	Retched once	2 cases.
	Several times	1 case.
	No details	3 cases.
2 vomited afterwards only	One an infant of 8 months (resection of intestine). Vomiting preceded death 4 hours later. The other case had slight vomiting 10 hours later.	
1 complained of nausea during the operation.		
	Total	30 cases.

Of these 30 cases five were suffering from acute abdominal disease (four being under one year old), and in them vomiting was, to some extent at least, a symptom of the disease; in one case, however, the anæsthesia was not given high enough and vomiting ensued on manipulation of the transverse colon. This leaves us, therefore, with 25 per cent. of the children in whom the vomiting was clearly due to the anæsthesia. Sex is not a determining factor, but the younger the child the less is the tendency to vomit. I have been unable to satisfy myself that a more careful regulation of the dose by the age of the patient can control this unpleasant manifestation.

2. Following on this symptom a certain degree of pallor supervened with a little sinking under the eyes and accompanied by a slight fall of pulse tension and slowing of the respiration. This occurred in nearly all the children in the series. In 14 instances it was noted that the pallor was very marked and accompanied by sweating. The rate of the pulse was seldom altered to any extent. I have reported these symptoms in some detail because in the study of my second 100 cases I hope to investigate their causation and prevention; but in *no case* were these changes ever sufficient to cause any anxiety or hamper the course of the operation.

3. In some instances where nausea or vomiting was absent a transitory restlessness was noted as preceding the onset of pallor. This restlessness occurred in 10 per cent. of cases, all of which were males:—

Under 2 years	2 cases.	
Over 2 years	8 cases	5 under 5 years.
		3 over 5 years.

These symptoms, unpleasant but never serious, are quite readily amenable to a dose of brandy, which rapidly restores the colour in all but the very marked cases. Their occurrence cannot be predicted in any given case, and is not influenced

[15] Brit. Med. Jour., Oct. 5th, 1907, p. 869.

to any extent by withholding food before or during the operation. There is, however, less tendency to vomit if the stomach is empty. Chaput[16] has experienced these inconveniences in the employment of rachistovainization, and his opinion of their severity is summed up in the following words: "Pour ma part, les faits de Leguen ne modifièrent pas mon opinion sur la valeur de la méthode de Tuffier, et je continuai à en rester partisan malgré quelques *petits inconvénients sans aucune importance.*"

Sequelæ.—There has been no case of incontinence, persistent paralysis, ophthalmoplegia, tremors, convulsions, or epileptic fits[17] in the series. Slight headache, lasting for a few hours, was complained of in two cases, while in no case has death resulted from the anæsthesia. The majority of these sequelæ have been reported from the continent, and it seems significant that in many instances there has been a remarkably strong family or personal history of nervous and mental disease. Ocular palsy is reported in one case from simple puncture without the injection of any anæsthetic.[18] In this connexion Mingazzini's case is particularly interesting and I would refer the reader to this paper. 74 children were examined, or information concerning them was obtained in writing, from one to six months after the anæsthesia; no answer was received in eight instances. Nine children died subsequently from the disease for which they were operated on, and when a necropsy was performed no abnormality was detected in the nerve roots, the cord, or its membranes. One child had spinal anæsthesia on three, and three children on two, occasions. These, together with the four failures, make up the total of 100 cases.

The *advantages* to be gained by the use of spinal anæsthesia have so far impressed me that I am convinced it will occupy an important place in the surgery of children in the future. Such disadvantages as are consequent on its use will doubtless be eliminated as more work is done on the subject, but these I have found comparatively trifling when compared with those of general anæsthesia administered under the same conditions. A detailed consideration of these advantages is better deferred until after a review of the second series of cases, for a considerably wider range of operative work will thus be embraced.

(To be continued.)

A CASE OF ACUTE TORSION OF A WANDERING SPLEEN; SPLENECTOMY; RECOVERY.

BY IAN MACDONALD, M.D. EDIN. AND PARIS,
CONSULTING SURGEON TO THE UNITED ALKALI, PEÑA AND ESPERANZA COMPANIES;
AND
W. A. MACKAY, M.D. EDIN., F.R.C.S. EDIN.,
CONSULTING SURGEON TO THE RIO TINTO AND UNITED ALKALI COMPANIES.

THOUGH all the viscera except the liver, and almost every variety of abdominal tumour are liable to torsion of the pedicle, the accident in the spleen is rare. For in a series of 708 splenectomies performed up to date, and collected and analysed by Johnson[1] in connexion with six cases operated on by him, only 39 showed twisting of the pedicle; of these 27 were idiopathic enlargements of the spleen and only 12 malarial. From Johnson's table it appears that splenectomy of the malarial spleen with torsion has been performed 12 times, with ten recoveries and two deaths. The mortality in this condition shows steady diminution, for before 1890 two cases were reported with one death, from 1890 to 1900 three cases with one death, and since 1900 seven cases without a death.

Wandering spleen is a rare affection, and it occurs far more frequently in women than in men. During a long residence in South Spain, where malaria is the most common disease, many cases of hypertrophied malarial spleen have passed through our hands, but the case we record here is the first we have met of wandering spleen. The length of the pedicle may be such that the displaced organ may occupy any region of the abdomen, and probably no other viscus has given rise to more erroneous diagnosis. In the quiescent state the errant spleen has been mistaken for ovarian and uterine tumours, and in the acutely turgid condition consequent on torsion of its pedicle it has simulated abscesses in the subphrenic and perigastric regions.[2] In the following case it was mistaken for a mobile kidney, as it lay to the right of the umbilicus, and later, when torsion was acute and the congested, enormously enlarged organ filled the right iliac fossa, to those who saw it then for the first time the picture of appendicitis seemed complete.

Kadygroboff[3] states that the diagnosis of mobile spleen is difficult, and more so that of torsion of its pedicle; in fact, he says that it has never yet been diagnosed, adding that the diagnosis should not present much difficulty were the existence of a wandering spleen already known. But an interesting case reported by Bland-Sutton[4] in 1892 shows that the condition has been recognised. This surgeon in a case of ill-defined tumour narrowed down the primary diagnosis to that of wandering spleen or omental hydatid. On operating he found a wandering spleen with one and a half turns on its pedicle which he straightened out, replacing the spleen in the left hypochondrium. Three and a half months later symptoms of acute torsion appeared, which, he remarks, were exactly those met with in acute axial rotation of ovarian tumours, and a second operation became urgent. The spleen, lying in the pelvis with three complete twists of its pedicle, was removed, the patient, a woman 22 years of age, making a rapid recovery. He further remarks that the shallowness of the notch on the anterior border explained why the definite diagnosis of splenic tumour was not made before the first operation.

We have no real knowledge as to the cause of torsion, though many theories have been advanced. In this case there had been an accouchement eight months previously, which is considered a predisposing cause (Laveran). The pathological conditions which follow torsion are well known—the formation of infarcts from the acute congestion of the organ, thrombosis of the vessels, possibility of rupture, with grave intraperitoneal hæmorrhage or even necrosis if the torsion is tight. Bland-Sutton and Pozzi[5] record cases where evidently torsion of the pedicle has resulted in complete detachment of the organ, for in two cases of obscure pelvic tumours histological examination revealed splenic tissue. Usually the twisting is limited to three turns of a spiral, though Kadygroboff reports a case where four existed; the following case only showed two. Clinically, Kadygroboff describes three types of this torsion, which, however, are not very clearly separated from one another: an acute form with all the characters of an acute peritonitis; a subacute type where the spleen, much increased in size, is tense and painful to palpation, shows hæmorrhagic infarcts, and is liable to secondary infections; and a chronic variety which develops almost without symptoms. Whichever type is present there is always considerable irritation of the neighbouring peritoneum and the gravest complications may occur, such as intestinal obstruction (Rydygier) or even necrosis of the fundus of the stomach from distension and obliteration of the vessels (Govseieff). The extent to which the peritoneum is involved varies greatly, and Hartmann,[6] in connexion with a case of acute torsion among four of wandering spleen, has called attention to the fact that the peritonitis, on removal of the tumour, rapidly disappears without flushing or drainage of the abdominal cavity. He considers the peritonitis aseptic.

The history of our case is as follows:—

A woman, a multipara, 23 years of age, was seen by one of us in a Spanish village in consultation with her usual medical attendant a month previously. She was a delicate, anæmic subject, evidently a chronic paludic, and was nursing a child eight months old. She complained of colicky pains and nausea, with marked frequency of urinating. The first attack came on one month after the birth of the child and

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[16] Loc. cit.
[17] Loeffler: Münchener Medicinische Wochenschrift, 1906, p. 95.
[18] Loeffler: Loc. cit. Hesse: Deutsche Medicinische Wochenschrift, 1907, p. 1491. Wolff: Berliner Klinische Wochenschrift, vol. xliv., 1907, p. 1305. Mingazzini: Revue Neurologique, March 15th, 1908, p. 185.

[1] Annals of Surgery, vol. xlviii., No. 1, July, 1908.

[2] Moynihan: Abdominal Operations, p. 652.
[3] Journal de Chirurgie, April, 1908.
[4] Transactions of the Clinical Society of London, vol. xxvi., p. 46. Surgery of Diseases of the Ovaries and Tubes, p. 165; Nine Cases of Splenectomy, THE LANCET, Dec. 1st, 1900, p. 1578.
[5] Revue de Chirurgie, vol. xxviii., p. 405.
[6] Congrès Francais de Chirurgie, 1895, p. 495.

was rather severe, with bilious vomiting, urine being passed in small quantities during the attack. Since then the pain had recurred at intervals but less severely, always being accompanied by frequency of micturition.

On examining the abdomen a tumour was at once found to the right of the navel and slightly below it. It could be moved upwards and downwards and across towards the middle line. The patient said that sometimes it lay to the left of the umbilicus. It was slightly tender on palpation, felt more or less rounded, and slipped away with great ease from the examining fingers, being a little difficult to find again. No distinct notch could be made out, and as moveable kidney is most common on the right side the tumour with these symptoms was diagnosed as such, and nephropexy advised, as it was evidently causing her considerable trouble.

The patient continued her usual mode of life until June 8th, when she had another severe colicky attack, with free bilious vomiting, which forced her to go to bed. The pains and vomiting lasted off and on until the 12th, when she was able to get up again. On the 13th she was so well that when the medical attendant called to see her he found her out marketing, but again at 4 P.M. on this day she sent for him, in more acute pain than ever, with frequent vomiting, cold sweats, and complete retention of urine. The urine was drawn off and the medical attendant now noticed that the tumour was firmly fixed on the right iliac fossa, that it had enormously increased in size, and that it was most acutely tender. He administered morphine for the pain and recognising the gravity of the case advised the family to send her under our care immediately. This they could not make up their minds to do until the 17th, when they subjected the patient to a journey of half an hour in a coach over a rough road, and three hours in a railway train. From the 13th to the 17th vomiting had never ceased, retention of urine was constant, but the bowels had been moved by enemata.

The patient, with the drawn face of peritonitis, walked into the consulting room supported by her mother and husband, dark rings under her eyes, the extremities cold, and a pulse of 140. She vomited some bilious matter, and voided a small amount of urine which was found to be loaded with albumin. On examining the abdomen a huge mass was found on the right side extending from just above the navel down to the pubic bone, under which it dipped and was lost to palpation. Outwards it bulged hard against Poupart's ligament and the anterior superior spine, while it reached almost to the middle line internally. Absolutely dull to percussion in the iliac fossa it gave a resonant note before reaching the middle line, where it was evidently overlain by bowel, and deep palpation here revealed the doughy feel sometimes got with adherent omentum. The mass was very tender all over, but the point of greatest pain on pressure lay exactly over McBurney's point. Per vaginam there was a bulging lump most acutely tender behind the uterus to the right, and rectal examination revealed a similar state of affairs but less distinctly. The temperature was normal, but the patient stated she had had rigors and profuse sweating.

Moveable kidney having been the original diagnosis, acute torsion of the renal pedicle and consequent hydronephrosis naturally presented itself as the diagnosis of the condition, but in some doubt the incision was made over a prominent part of the tumour in the iliac fossa as the mass evidently reached far down in the pelvis. The patient, in a state of complete collapse, with the pulse 140 and her extremities cold, was put on the table and an incision four inches long made one finger's breadth inside the iliac spine. On opening the peritoneum some odourless liquid at once welled up and a bluish-black solid tumour mottled by dirty white spots was seen. With several fingers in the wound a rounded upper end capped by adherent omentum could be felt, and a less rounded extremity fixed in the pelvis beside the uterus. Between these poles bowel and more omentum were adherent along a well-marked edge. The incision was rapidly enlarged upwards by a cut of the scissors and the whole hand introduced towards the middle line. Here at once a twisted pedicle could be felt. The adherent bowel and omentum were now gently detached from the tumour and the lower end was disengaged from the pelvis, and a spleen with two twists of its pedicle carefully delivered through the wound. Round the pedicle more omentum was firmly wrapped; it was pushed back along with an accessory spleen just far enough to allow transfixion of the pedicle by a silk ligature. Another ligature encircling the whole pedicle was placed beyond the first one and the spleen was cut away. The wound was shut by a single layer of fishing-gut sutures, the operation having lasted less than 20 minutes.

The patient when put back to bed continued to vomit all night; the vomit, previously bilious, now changed to a black flaky vomit which welled up without effort. Strychnine was pushed hypodermically and saline injections with brandy per rectum, as much as 90 ounces being retained in 24 hours. By 9 P.M., though vomiting was not less nor the pulse-rate lower, the quality of the latter had improved, and by the morning it had fallen to 120, and vomiting had ceased. Improvement continued all the next day and the urine at the end of 48 hours was free from albumin. On the third day after the operation, however, the patient complained of a sharp pain in the back, the pulse again rose to 130, and lobar pneumonia set in in the left lung. At this stage the blood was examined and malarial parasites were found; for this reason a better prognosis was given, though the pulmonary complication was grave. 20 grains of quinine were given daily, and the pneumonia was treated on general lines, strychnine, digitalis, and carbonate of ammonia being added and the patient freely stimulated with alcohol. On two nights, when her condition seemed worse and the pulse rose to 135, saline injections per rectum were resumed and strychnine repeated hypodermically. Both lungs became involved, but the crisis came on the tenth day.

Among the perils which menace the patient after any successful abdominal section pneumonia is always one of the gravest, but after splenectomy it appears to be particularly fatal, for Jonnesco[7] in 29 splenectomies for hydatid and malarial enlargements lost ten patients, two from hæmorrhage but eight from pulmonary complications. This may have been accounted for by the fact that such cases are often enfeebled and the spleenless patient is considered more prone to infections. But the action of the surgical trauma in lighting up fever in previously malarial patients must never be overlooked, and in this case the blood examination confirmed our suspicion that the pneumonia might be malarial in origin. Whether the specific action of the parasite be admitted or not, pneumonia is unquestionably one of the most frequent complications of malarial fever. A patient in worse condition for resisting such an infection would have been difficult to find, yet on the blood examination we gave a better prognosis and we consider that the specific action of the quinine modified the course of the disease most favourably.

Though a double lobar pneumonia, the highest temperature never passed 103° F., and there were morning remissions of several degrees, the subsequent rise being often marked by severe chill, the teeth on one occasion chattering. Sweating, during the whole attack, was profuse. The patient returned home completely convalescent one month from the date of operation. Two months later she was in excellent health and had increased considerably in weight, and she remarked that for many years she had never felt so well. The spleen measured 24 by 14 centimetres at the thickest part and weighed 1 kilo. 290 gr. (45 ounces). It showed two large infarcts at the anterior basal angle which had been fixed beside the uterus, and all the vessels at the hilum were filled by large thrombi. The notch on the anterior border hardly existed, being faintly represented by an undulation of the edge.

Huelva, Spain.

[7] Congrès de Chirurgie, Paris, 1899.

THE SOCIETY FOR THE STUDY OF INEBRIETY.—The next meeting of this society will be held in the rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., on Tuesday, Oct. 12th, at 4 P.M., when Dr. J. Milne Bramwell will open a discussion on Suggestion and its Rôle in the Treatment of Inebriety. Each member and associate is at liberty to introduce a visitor. We are asked to state that the council has established a reserve fund to provide means for the furtherance of the work of the society. Contributions are invited in order to assist in meeting the expenses of the society and in helping the conduct of scientific investigations and educational work relating to the study of alcohol and alcoholism. All contributions should be forwarded to the honorary treasurer, Dr. G. Basil Price, 53, Devonshire-street, Portland-place, W.

A CASE OF

ARTERIO-VENOUS ANASTOMOSIS FOR GANGRENE.

BY DONALD J. ARMOUR, M.B. LOND., F.R.C.S. ENG.,
SURGEON TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC; ASSISTANT SURGEON TO THE WEST LONDON HOSPITAL;
AND
E. ARCHIBALD SMITH, CH.M. VICT., F.R.C.S. ENG.,
CLINICAL ASSISTANT TO SURGICAL OUT-PATIENTS AT THE WEST LONDON HOSPITAL AND THE PADDINGTON GREEN CHILDREN'S HOSPITAL.

THE patient, aged 69 years, came to the surgical out-patient department of the West London Hospital on April 20th last, complaining of swelling, coldness, and feelings of pins and needles in his right leg and foot. He was a very feeble old man. The arteries were tortuous and thickened, the pulse tension was not high, and the right leg and foot were cyanosed and the circulation in them was very sluggish. The pulse could be felt in the right femoral artery, but not in the popliteal or below it.

On April 23rd the man was admitted to the hospital under the care of one of us (D. A.). His condition was *in statu quo*, except that a bulla had formed on the side of the hallux. On the 26th, being fully aware that his leg was doomed if left alone, he was willing that an arterio-venous anastomosis should be done with the view of reversing the circulation in the limb, and so attempting to stay the gangrene by conveying arterial blood through the branches of the veins. The foot was now quite cold and very discoloured, the patient's general condition having, however, somewhat improved under treatment in hospital. The operation was therefore undertaken jointly by the writers, spinal analgesia having been induced by Mr. H. M. Page, anæsthetist to the hospital, by means of an injection of 5 cubic centimetres of 2 per cent. novocaine solution.

Operation.—The femoral vessels were exposed by an incision some 20 centimetres long extending from the middle of Scarpa's triangle to the middle of Hunter's canal. The sartorius was retracted inwards and the internal saphenous nerve outwards. The vessels, being then thoroughly exposed, were temporarily clamped, separately, at the upper and lower extremities of the wound, two of Crile's clamps being used, and two clamps such as have been devised by one of us,[1] and constructed out of a pair of long-bladed compression forceps and some guttapercha tubing. The artery was noted to be very rigid, with atheromatous plaques in its walls, and the vein was nearly empty. Both vessels were then cleanly divided at the same level. The upper end of the artery was then sutured to the lower end of the vein by means of the modified[2] quill-suture method, the suture material being of the finest silk and the quill being represented by a strand of Van Horn's chromicised catgut of No. 1 thickness. The intima of the artery was thus brought into apposition with the intima of the vein. On completion of the suture the clamps on the two portions of vessel concerned were removed, on which the blood-stream and pulsation passed direct from the artery into the vein, and no oozing whatever occurred from the suture line. An exactly similar procedure served to unite the lower end of the artery to the upper end of the vein. The clamps were then all removed. Some rather troublesome oozing of blood which occurred at this stage of the operation was found to proceed from a small branch of the femoral trunk which had been broken close to the main vessel, some five centimetres above the site of suture and not from the suture line itself. This was then secured with some difficulty. The blood-vessel suture had been exceptionally difficult on account of the brittle and thickened condition of the wall of the artery, which indeed showed a large patch of atheroma at the very point of division. The sartorius muscle was then sutured in position with catgut, the deep fascia being also sutured. The skin was closed with silkworm gut, no drainage being used. Finally, the internal saphenous vein was exposed at the upper end of the thigh and divided between ligatures, in order to close the most obvious of the possible short-circuits of the circulation in the limb. The most rigid aseptic precautions were observed throughout the operation, no chemical disinfectants whatever being allowed in contact with the wound. The sutures for the blood-vessels were sterilised in superheated alcohol vapour. The lumbar analgesia remained perfect till within half an hour of the end of the operation, when a slight amount of chloroform was administered. The patient had refreshment from time to time throughout the operation, and was eventually removed to bed in as good condition as when brought to the theatre, in spite of an operation lasting, including the time occupied in inducing the analgesia, some three hours. The total loss of blood throughout the operation certainly did not exceed 2 ounces. No immediate effect was observable on the veins of the foot, which was carefully wrapped in sterile cotton-wool and bandaged. The patient was ordered a mixture containing citrate of potash, nux vomica, and spirit of ether.

Subsequent course.—The patient's temperature rose to 102° F. immediately after the operation, falling to 100° on the same night, and afterwards becoming normal. His general condition improved considerably. The tongue, which had been dry, became moist and clean and the pulse, which had been irregular, became regular and stronger. Two small hypodermics of morphia were required to combat a little excitement during the first 48 hours succeeding the operation. On the fourth day after the operation a line of demarcation began to form at the level of the upper and middle thirds of the leg on the outer side, and of the lower and middle thirds on the inner side. Above this the leg was warm and the superficial veins were actively conveying blood and somewhat distended, but not pulsating. The blood-flow in the superficial veins over the front of the knee appeared, however, to be centripetal. No pulse could be felt in the popliteal space, though it was quite evident in the portion of vein below the suture as far as the adductor foramen, and was accompanied by a distinct thrill, probably derived from vibrations set up by the thickened intima at the suture line. On the seventh day after the operation the temperature rose slightly, reaching 100·3° on that and the subsequent night. Some slight superficial infection had occurred in the sutures of the upper end of the wound. All the sutures were removed, the lower part of the wound, and that for the ligature of the saphenous vein, being soundly healed. The condition of the leg was the same as before—namely, no further extension of the gangrene, and a distinct pulse and thrill to be felt over the vessel as far as the adductor foramen.

On May 10th, 14 days after the anastomosis, it was decided to amputate the leg. This was done by the circular method a hand's-breadth above the knee-joint. The stitch abscess in the original wound had much improved and was thoroughly treated with 1 in 500 perchloride of mercury solution previous to the performance of the amputation, which was done under spinal analgesia induced by Mr. Page, exactly as in the previous operation. After dividing the main vessels it was seen that the vein (as originally constituted) was patent, while the artery was occluded with fibrinous clot. On tying the vessels and loosening the tourniquet the vein pulsated in the end of the wound exactly as a ligatured artery would. There was no blood extravasated in the sheath of the vessels, showing that the suture line had held absolutely fast. The wound was closed in its whole length without drainage, and liberally covered with dressings, and the patient, who bore the operation remarkably well, was removed to bed. The point of division of the main vessels was about eight centimetres below their site of suture in the original operation.

After the amputation the patient's general condition varied somewhat. He generally had some slight elevation of temperature at night for which no cause could be assigned. The amputation wound healed perfectly, without so much as a stitch abscess, and all sutures were removed by the eighth day, when the original wound was also soundly healed. At this time pulsation was distinctly to be felt in the vessel beyond the suture site up to the point of ligature. On the fifteenth day after the amputation it was noticed that the vein beyond the site of vessel suture was dilating considerably and pulsating markedly, which raised some anxieties lest an aneurysm should form. Three days later, however, it was evident that the dilated portion was becoming more solid, and in another three days it had become completely thrombosed and no longer pulsated at all. A small patch of

[1] See monograph on "Suture of Arteries" by E. Archibald Smith, Oxford Medical Press, 1909.

[2] Ibid.

ecchymosis appeared on the left heel, but no further extension of the trouble occurred, and on June 7th, 28 days after the amputation, the patient left the hospital on crutches.

The examination of the amputated leg was very interesting. Immediately below the point where the popliteal vein had been divided that vessel was joined by the external saphenous vein and by a small collateral vein of the popliteal of similar size to the external saphenous. The main popliteal vein possessed four sets of valves and was thrombosed below the highest set, the thrombus being soft and red and causing the vein wall to bulge markedly above each pair of valves. The external saphenous and the small collateral vein were liberally provided with valves, which showed a small thrombus in the dilated portion above each valve, but neither of these vessels was completely thrombosed above the level of the division of the popliteal vessels into anterior and posterior tibials. The internal saphenous vein was patent down to the level of the knee-joint, but was thrombosed below. All arteries in the amputated limb were very degenerated and were filled with fibrinous clot which completely occluded their lumina.

Commentary.—The case is both interesting and disappointing. The patient was very feeble, and gangrene had already set in when the arterio-venous anastomosis was made. This latter was, *per se*, absolutely successful, there being no leakage at the suture line, and immediate re-establishment of the blood stream and pulse, and at no time any obstruction at the point of union of the artery to the vein. It is, moreover, worthy of note that, after the amputation, the suture line was strong enough to withstand a pressure of blood which was sufficient to cause a marked dilatation of that portion of the popliteal vein which lay between the suture line and the ligature in the end of the stump.

This is the first application of the quill-suture method of blood-vessel suture in human surgery, and our experience leads us to say that, while the finest silk suture was quite strong enough and perfectly satisfactory, the catgut used for the quill might with advantage and convenience have been a little thicker, at any rate for so large a vessel as the femoral, and should be capable of resisting absorption for not less than one month.

The effect of the anastomosis on the limb was certainly not harmful and may have hastened the formation of a line of demarcation.

Although examination of the amputated extremity showed considerable thrombosis in the veins below the level of amputation, it would appear that there must have been some conveyance of blood downwards on the part of those veins which were not completely thrombosed, on account of the increased warmth and fulness of the veins over the front of the knee after the anastomosis and before amputation, and also on account of the marked distension of the vein between its junction with the artery and its ligature in the stump after the amputation. This distension coincided with an increase in strength and blood pressure on the part of the patient, and with the closure of the main outlets for blood from that portion of vein between the suture line and the ligature. Had this distension occurred sooner, the valves of the popliteal vein would have been made thereby incompetent, and their obstruction to the vein taking on the function of an artery done away with.

There can be no doubt that the thrombosis in the veins of the extremity had spread upwards from the gangrenous area, as is shown from the internal saphenous, which had been ligatured near the saphenous opening at the time of the first operation, being patent down to the level of the knee-joint but thrombosed below that level as it approached the gangrenous region. The popliteal vein having the strongest and thickest walls of any vein in the body, it might have been beneficial to have passed some blunt instrument along it in a downward direction to force the valves before completing the suture.

It is important to draw attention to the possible short circuits to the circulation in any procedure of this kind owing to the free intercommunications everywhere existing between veins. The most obvious of these short circuits we endeavoured to deal with by ligaturing the internal saphenous vein as near the saphenous opening as possible, but there must have been others, both superficial and in the muscles of the thigh, which were not, and indeed could not have been, dealt with.

Finally, in a patient so feeble as ours, such an operation as was performed would have been out of the question had we not had spinal analgesia available instead of general anæsthesia. The spinal analgesia induced was extremely satisfactory both to ourselves and to the patient.

THE TREATMENT OF SYPHILIS BY INTRAMUSCULAR INJECTION OF INSOLUBLE SALTS OF MERCURY AS CONTRASTED WITH THE INUNCTION METHOD: A CRITICAL REJOINDER.*

BY H. C. FRENCH, M.R.C.S. ENG., L.R.C.P. LOND.,
MAJOR, R.A.M.C.; ROYAL HERBERT MILITARY HOSPITAL, WOOLWICH.

I READ Dr. G. Pernet's interesting paper in THE LANCET of July 24th, 1909 (p. 212), "The Intramuscular Treatment of Syphilis, with special reference to the Insoluble Preparations of Mercury—a Critical Review," and submit the following remarks for the consideration of those interested in this important subject.

Dr. Pernet states that at the meeting of the British Medical Association at Sheffield in 1908 "Professor Neisser of Breslau and he were the only two speakers who were resolutely in favour of the use of insoluble preparations." He also adds that "mercurial cream injections are used in the British Army notwithstanding the adverse criticism of many British dermatologists given in evidence before the Commission of Inquiry, although apparently they had no actual experience of the method." The latter part of the statement is, I think, incorrect. As regards "civil" hospital practice, Mr. Charles Gibbs of the London Lock Hospital, who gave expert testimony at this Commission, stated that "severe relapses are twice as frequent after injections as after the inunction or pill treatment, and iritis is peculiarly common in the relapse after intramuscular injections."[1] Mr. Arthur H. Ward, in revising the records of the Lock Hospital, London, says: "He was struck by the number of patients who only took one injection and never came again."[2] The late Dr. Radcliffe Crocker, who held a European reputation both as an author and dermatologist, stated, "from a study of the literature of the subject it seems that the dangers from insoluble preparations are considerably greater than those from soluble, and if salivation once sets in you have no controlling power over it at all."[3]

Dr. Pernet in his article records seven deaths, in France, under intramuscular injection of insoluble salts of mercury. There are also seven deaths on record in the British army in the report of the above Commission of Inquiry. Mention of these is omitted by Dr. Pernet, but to show "that no method is perfect" he cites two deaths under inunction due to mercurial exfoliating dermatitis. This condition, as pointed out by Fournier, in France, "has been described under the name of hydrargyria febrilis maligna. It is not peculiar to the inunction method, and may occur with all the different modes of administration. Moreover, it is due to a rare idiosyncrasy."[4] Barthélemy reports ten cases treated by cyanide of mercury intramuscular injections. "All had stomatitis, and two developed intense scarlatiniform rashes with pyrexia followed by desquamation. After recovery a second injection was followed by a more severe erythema and pyrexia."[5]

Surgeon-General Fawcett, R.A.M.C., in a valuable contribution, states that at Cairo, Egypt, between April and July, 1901, "a series of cases of mercurial poisoning has arisen amongst soldiers undergoing treatment for constitutional syphilis by intramuscular injections of mercury, and of so grave a character that a full report is necessary. There were two deaths, three men invalided to England, and seven cases of excessive mercurial ptyalism."[6]

CASE 1.—Private C. came under treatment Sept. 11th, 1900, at the Station Hospital, Cairo. From this date to April 3rd, 1901, he received as an out-patient 18 injections of 10 minims of standardised grey oil (Hg = gr. 2) in a period of 30 weeks—that is, 36 grains of metallic mercury in 30 weeks. He was admitted to hospital on April 24th, 1901, with ulceration of the soft palate, spongy gums, the third molar being

* The superior figures refer to the bibliography at the end of the article.

almost enveloped, salivation, and fœtor of breath. On June 1st anorexia and debility had set in, and on the 2nd he died. Post mortem there was a large, firm, ante-mortem clot in the left chambers of the heart. The large intestine was congested, the small one normal. The tongue was swollen and there was ulceration of the buccal mucous membrane.

CASE 2.—Private R. From 1894 to 1898 there were many admissions for constitutional syphilis. In November, 1899, he was 32 days in hospital with syphilis. On Dec. 18th, 1900, he was admitted to hospital with syphilis, and received 12 intramuscular injections of insoluble grey oil 10 minims each (Hg = gr. 2) up to March 18th, when he was discharged from hospital. He received injections on April 3rd, 10th, and 24th, and May 1st. Total 32 grains metallic mercury. He was admitted to hospital on May 8th—ptyalism, symptoms of syphilis present, perforation of palate and a scaly syphilide of lower extremities. He went to Alexandria for change of air on June 20th. On July 6th he was readmitted to hospital with severe stomatitis. He improved and then retrograded with rapid severe relapses as some fresh focus of mercury became absorbed. Progressive emaciation occurred despite a large ingestion of food. His weight fell from normal (11 stones) to 7 stones. On August 17th he died from exhaustion. Post mortem there was extreme emaciation together with ulceration of the buccal mucous membrane and periostitis of the lower jaw. The mucosa of the sides of the tongue was deeply ulcerated, the epiglottis and glosso-epiglottidean folds being much involved. The condition of the bowels was not noted. The tissues were searched chemically and microscopically for traces of mercury but none could be found.

CASE 3.—Private S. Commenced continuous treatment for syphilis in April, 1900. Discharged from hospital on June 6th. From June 6th to Feb. 7th, 1901, he received 17 injections of standardised grey oil, and one on March 13th and another on the 27th. On May 1st there were marked tenderness of the gums and slight ulceration of the buccal mucous membrane on the right side. The alimentary tract was extensively involved, the tongue was furred, and the digestion was bad, whilst traces of blood were noticeable in the stools. He was admitted to hospital on May 3rd with progressive ulceration of the mouth, and dysenteric condition of the bowels; salivation was present. He improved and was discharged from hospital. An exacerbation of stomatitis ensued and he was readmitted to hospital. He was transferred to Alexandria for a change of air on July 4th, 1901, and after a protracted illness was invalided to England on Nov. 14th, 1901.

CASE 4.—Private M. received four injections of ♏x. grey oil (gr. 2 Hg) between Jan. 19th and March 2nd, 1901. He then received five more—viz., on March 2nd, 13th, 20th, April 3rd and 10th. On April 24th, 1901, he was admitted to hospital with intense salivation, marked fœtor of breath, and slight ulceration of the mouth. He improved in hospital, and after a change of air at Alexandria he recovered. He received in all 18 grains of metallic mercury in the nine injections.

The report clearly shows, in regard to the above four cases and the other eight cases, "that it was purely due to sudden uncontrollable poisoning by grey oil, and the medical officers were all careful, extremely reliable men, who had two years' actual experience of the method of injection." This appears to conflict with Dr. Pernet's statement "that when intramuscular injections of grey oil are carried out with care and precautions complications do not arise." On pages 27 and 28 of the First Report of the Advisory Board on "Venereal Diseases in the Army" 110 cases of pulmonary embolism are also cited under injection of insoluble salts; "none were fatal, although some presented alarming symptoms." It is also stated:—

CASE 5.—At Barrackpore, India, in 1895, the patient received eight weekly injections of ♏x. grey oil (mercury ℥ 1, lanolin ℥ 2, olive oil ℥ 1½). He became salivated with swollen ulcerated gums. He temporarily improved under treatment. Recurrent diarrhœa, pyrexia, difficulty of swallowing, and symptoms of dysentery finally appeared. He died. Post mortem there was necrosis of the lower jaw at each angle. The mucous membrane of the large intestine was quite black and on the point of sloughing. Numerous small ulcers, old and recent. Kidneys congested; weight 12 ounces.

CASE 6.—Case of syphilis with history of dysentery. The patient received two injections of Lambkin's cream. 15 days after the second injection salivation and ulceration of the tongue and pharynx ensued. These healed under treatment. Severe diarrhœa set in, and continued up to his death six weeks after the last injection. Post mortem old and new ulcers of large intestine were found.

CASE 7.—Old-standing syphilis. He received four injections of Lambkin's cream. A week after the last injection he became salivated with spongy ulcerated gums. There were ulcers on the tongue, cheeks, and palate. The parotid gland was swollen and painful. Improvement occurred, then relapse of the stomatitis and severe diarrhœa. He died, collapsed, seven weeks after the last injection. Post mortem the liver weighed 72 ounces; healthy lower 5 feet of the small intestine were much congested. Large intestine showed blue discolouration of the mucous membrane, and worn away in patches without being ulcerated. The kidneys were large. Death was ascribed to syphilis.

CASE 8.—Japha reported a death after two injections of 1 centigramme each of salicylate of mercury in a case of syphilis with paraplegia.

In the *British Medical Journal*, 1896, p. 55, nervous symptoms and poisoning after mercurial injections are reported. Dr. Arthur Whitfield of London further informed me of a medical man on the Continent who stated that he had treated a series of cases by injection of insoluble salts of mercury, "with only two deaths." Possibly this explains Dr. Whitfield's statement "that he considered the use of insoluble preparations such as grey oil as hardly justifiable in view of the recorded deaths from this method of treatment." [7] The above list of deaths, however, clearly shows the absolute necessity for extreme care with the insoluble injection method.

As regards my personal experience of this method, I never give it to in-patients now, as I consider other methods much more valuable. I have probably given or seen administered 15,000 injections of insoluble grey oil (Lambkin's formula) to "out-patients." I never give more than six weekly injections of 10 minims each of the standardised mercurial cream (Lambkin's formula). This contains one grain metallic mercury in each dose. I allow an interval of from two to three months, then another course as above, and so on for two years. The cases are taken into hospital for treatment when relapse occurs. My experience, as stated elsewhere,[8] is that although injections of insoluble salts of mercury are unquestionably "convenient" in the army for "out-patients" who attend weekly, yet they have not the same curative action on syphilis in the early stages as that by the inunction method, or hydrargyrum cum creta with opium, since the induration of the chancre and inguinal glands, in my experience, persists for a longer time under injections than under inunctions. I formerly questioned the alleged "slow absorption and elimination of insoluble salts of mercury." [9] In 1905, at Woolwich, when grey oil injections were used for both in-patients and out-patients, there were 54 admissions to hospital for relapse of syphilis. The method of inunction was substituted for in-patients on my arrival in October, 1905. In 1906 there were 27 admissions for relapse; in 1907, 22; and in 1908, 13. The duration in hospital in 1906, 1907, and 1908 was less, and the constantly sick ratio for syphilis in 1908 was one-fourth that of 1905. (*Vide* Table I.)

Dr. Pernet states: "In dealing with the insoluble preparations, and especially grey oil, I have referred mainly to French medical literature, for the simple reason that it is in France that they have been mainly employed. In England and the United States this method of treatment has not been applied to any extent, but only made use of sporadically." I must, however, contradict this statement as regards the British army: "At the present time (1904) about 1½ pounds of mercurial cream (grey oil, Lambkin's formula) are being supplied weekly for use in the British army. This corresponds to about 1500 injections per week." [10] As regards "French" medical literature, Dr. T. Dohi, "taking advantage of the death of a syphilitic patient from a fatal enteritis brought on by mercurial injections, studied the phenomena at the site of introduction of metallic mercury. He also made experimental inoculations into rabbits and dogs. In fact, little collections of metallic mercury can be found as long as 11 weeks after the injection." [11] This period approximates to that when death occurred in some of the foregoing cases. M. Hallopeau (France) pointed out in February, 1909, "that mercurial oil remained long in the tissues in a metallic state, and was apt to form deposits which became absorbed in quantity and cause grave symptoms of mercurial poisoning." [12] "In some cases deposits of mercury have been revealed by X rays and excised, thus cutting short the stomatitic symptoms." [13] Colonel Lambkin, speaking of injections of grey oil, states "one disadvantage is that should salivation take place after injection it is a difficult matter to prevent the symptoms getting worse unless the mercury is removed. This has been done by excision, but the operation to effect this is as difficult as it is dangerous." [14]

As far as Dr. Pernet's own experience goes, he states: "I have only employed the intramuscular injections in my private practice. No ill-effects ensue after 10–12 consecutive weekly injections of doses varying from 1–10 centigrammes." I am of opinion, and it is the usual practice in the British army, that weekly insoluble injections of standardised grey oil (Hg = gr. 1) should not ever be made for over six weeks, and in certain cases four weeks. I once saw on arrival at a foreign station a severe epidemic of stomatitis in men who had received eight consecutive weekly injections of standardised grey oil ♏x (Hg = gr. 1) prior to their coming under my care. It took three months' careful treatment to put some of them right. Stomatitis, however, may occur with any method if care and caution are not rigidly exercised, oral sepsis, carious teeth, and personal idiosyncrasy being important factors in its causation. The stomatitis due to injection, however, is impossible to obviate by suspending the remedy as usually suffices with other methods, since the drug may lie latent in the muscle for weeks and then be suddenly thrown into the system. The

principal objection of certain civil experts in the Commission of Inquiry to the intramuscular injection method was "that it decimated their clinics,"[15] and *ipso facto* syphilis would be unduly spread. It would appear from the following evidence that a similar experience occurred in civil clinics in France, where, as Dr. Pernet states, "the insoluble preparations, and especially grey oil, have been mainly employed."

Professor Fournier (Paris), in speaking of calomel intramuscular injections in France, says[16]: "The patients usually settle the question themselves either by informing their doctor that they will not hear of 'pricking,' or by leaving him to seek another who will treat them otherwise. At the hospital they change their day of attendance, and in the polyclinic they do not come again. What a number of cases of this kind I could mention. How many times have I heard my private patients tell me, 'For heaven's sake, doctor, no more injections. Prescribe everything else and I will obey, but as for your confounded injections I do not want any more. They really make me too ill. I cannot bear them any longer.'" Fournier cites two cases. 1. A case under the care of Dr. de Amicis, of a man, aged 58 years, secondary syphilis. Injections of sublimate were given. At the forty-fourth injection, made between the inferior angle of the scapula and the spine, violent pain was felt. On the third day complete paraplegia ensued, followed by bed-sores. Death occurred in a month. 2. A case under the care of Dr. Racocineanu of Bucharest. Injections of sublimate caused gangrene of foot. This necessitated amputation of the leg. Histological examination—adhesive phlebitis of the vein. Professor Fournier further states: "For my part I can certify to the possibility of treating and of curing the great majority of the manifestations of syphilis without having recourse to injections of calomel (and others besides). On this point I am in agreement with nearly all syphilologists." He continues, that Besnier, for example, after having made a long and conscientious study of the method of mercurial injections, arrived at the conclusion "that injections should not be performed in the treatment of ordinary syphilis." Mauriac also remarks "that out of a hundred cases of syphilis there is not one certainly which requires treatment by injections." Augagneur, after deliberate discussion, considers "that in the great majority of cases syphilis does not require injections in order to cure it." Has not the same opinion been many times stated and restated by a number of observers, such as Renaut, Barthélemy, Verchere, and others.

From a close examination of the foregoing evidence in a country where it has been extensively used it would appear that French medical opinion after a thorough trial is by no means unanimous as to the superiority of intramuscular injections over other methods. Inunctions form the routine method of treating syphilis in the French army and in some large civil institutions. The inefficiency in hospital from syphilis is much less in the French as contrasted with the English army, and similarly in the German army where inunctions are in routine use in the military hospitals and almost exclusively used in the civil clinics. From 1886 to 1890 the ratio of admissions per 1000 of strength in the German army was 27, in the French army 51, and in the British army 212. In 1900, German 17, French 37, British 93.[17] The reduction, in 1900, in the British army, as later explained, is due to a marked diminution in India as the result of the control of diseased persons since October, 1897. I concur in Dr. Pernet's view "that intramuscular injections, whether of soluble or insoluble preparations, are but one means of treating the disease and that intramuscular injections, especially the insoluble, are not to be given in a routine manner for any and every case of syphilis." I also consider with him that mercurial treatment should begin with the primary chancre—when recognised.

In 1898 I wrote: "To wait for the appearance of secondary lesions before commencing mercury is to lose an opportunity that can never be regained. It is during the period of so-called incubation (the period preceding the appearance of secondary symptoms) that the red blood corpuscles lose their pigment, as evidenced by the anæmia, debility, and lassitude that usually occur. The exhibition of mercury in small doses which has been proved to increase the number of red corpuscles and hæmoglobin is then essential. It is, moreover, an excellent tonic in small doses, especially in combination with opium. The length of time over which symptoms manifest themselves in syphilis is in the vast majority of cases purely a question of early treatment."

Patients suffering from malarial and tropical affections, as mentioned by Dr. Pernet, certainly "bear inunctions badly." I consider that the administration in such cases of any form of mercury, more especially "injections," requires very great care and experience. Matthias states that in the works of the very learned Boerhaave this general axiom is laid down: "That the fat of the body even to the last particle must be drawn off in the case of the venereal disease, for even if the least particle remains we must dread a relapse."[18] This apparently happened in Case 2 previously quoted, when the man lost 56 pounds before death. The learned Boerhaave also says "that if the patient spits three pints to two quarts in the 24 hours, it is sufficient, but if he spits less more mercury must be given." In the surgical works of Richard Wiseman, serjeant-surgeon to King Charles II., when speaking of the lues venerea, he directs "twenty to thirty grains of calomel as a daily dose, to be followed after 4 or 5 days with a few grains of turbith mineral if their chops do not swell."[19] It appears in the record of 20 deaths under mercurial injections previously cited that extreme salivation occurred, and that the gums swelled with comparatively small does of mercury. I consider, therefore, that the "method" of administration rather than an excessive dose is responsible for the deaths. It is also to be expected that if insoluble "oily" preparations are injected into muscles primarily intended by nature for locomotion embolism is very apt to occur. This may possibly explain the 110 cases of pulmonary embolism previously cited, as well as the case of gangrene ending in amputation of the leg. It would further appear to be just as great an error in the present age to cause "fat" or other kind of embolism as "to withdraw every particle of fat from the body," as recommended by the learned Boerhaave aforementioned a century and a half ago. With the inunction method we can largely guard against mercurial poisoning by the daily bath and with mouth methods by stopping the drug. Control, however, is lost once an injection is made. We knew the dose and can see it injected, but a remedy that can cause death before it is eliminated requires, like innovation of all kinds, "to be held for a suspect" (Bacon).

Colonel Lambkin states[20] "that intramuscular injection has never found favour in England and her world-wide Empire, the exception being in her army, where since 1889 it has been gradually pushing its way through the brilliant results which have been attained, especially in India, where during the last decade admission to hospital for syphilis amongst British troops has fallen from 400 per 1000 to 110 per 1000 as the result almost entirely of the adoption of the intramuscular method of administering mercury." The foregoing figures are incorrect, and the deduction is vitiated by the fact that an important legislative measure (the Cantonment Act) was introduced into India in October, 1897. This prophylactic measure considerably influenced the incidence of all forms of venereal disease, as the Act established effective control over both diseased men and women. In India in 1897 amongst British troops (70,000 men) the admission ratio was 106·2 per 1000 for secondary (constitutional) syphilis, and 125·6 per 1000 for primary syphilis.[21] In India in 1907 (ten years later) amongst the same number of troops, the admission ratio for syphilis was 22 per 1000.[22] In 1904, however, a radical change was made in collecting syphilis statistics throughout the army, as explained in the preface to my recent book,[23] the term "primary" syphilis (which included numerous errors of diagnosis) being entirely done away with, and so a marked reduction in venereal disease ensued as the result of more accurate returns (*vide* Table I., in regard to one garrison town, Woolwich). Further, in 1904, the attendance of soldiers as out-patients for syphilis was made compulsory throughout the British army, both at home and abroad, so that readmission to hospital for lapse of disease was consequently much lessened. Gonorrhœa and soft chancre, which are not treated by mercury, were also much reduced in India, the admission ratio in 1907 for gonorrhœa being only 48 per 1000, as contrasted with 114 per 1000, the decennial average for the years 1897–1906. The admission ratio in 1907 for soft chancre was 19·7 per 1000, as contrasted with 60 per 1000, the decennial average for the years 1897–1906, and similarly with the "constantly sick" ratio (*vide* p. 243, Army Medical Department

Reports, 1907). If we contrast, therefore, the decennial period 1897–1907 with the previous years, 1889–97 (when no control of diseased men and women existed in India), it can be readily seen from the Army Medical Department Reports that there was a steady "increase" of all forms of venereal diseases, including syphilis, from the year 1889 to 1897 in spite of treatment by injections of insoluble salts of mercury or other methods. I claim, therefore, that the admittedly brilliant results in the British army, especially in India, during the past ten years, by means of which a very great reduction in all forms of venereal disease has been effected, did not, as stated by Colonel Lambkin, "result almost entirely from the intramuscular method of administering mercury," but are principally due to the above preventive legislative control of diseased persons subsequent to 1897; to more careful and prolonged in-patient hospital treatment in the more contagious and remediable phases, which limits the local spread of disease; to systematised out-patient attendance under the valuable provisions of Appendix VII., Regulations for Army Services, as well as to the united efforts of army medical officers over a long series of years, rather than to any special mode of treatment. Further, in a recent valuable report (August 31st, 1908) on 64 stations visited in India by Major A. P. Blenkinsopp, R.A.M.C., it is shown by statistics on page 11 that relapses of syphilis with consequent readmission to hospital in the years 1906–07 were much more frequent under intramuscular injections of mercury than under other methods, such as inunction or ingestion. Further evidence is contained in an important article by Captain J. Dorgan, R.A.M.C., who says: "I treated 90 men for three years in one station, in India, giving them over 5000 injections of mercurial 'grey oil,' 65 per cent. did well under the injection, but they were all cases who had received a thorough preliminary 'hospital' treatment by inunction, or hydrarg. cum creta. I never used the injection treatment in hospital. The remainder of the cases (35 per cent.) showed definite relapses under injections although they had 40–70 injections before they showed symptoms. The routine was to admit them to hospital and press the dose to tolerance by inunction, or hyd. c. creta. This tolerance could not with safety be approached by injection, knowing as we do that the next dose may lead to serious, if not fatal, results. This fact must always remain a definite objection to the logical treatment of the disease by injection alone. It is with much diffidence that I record this personal opinion. I may say, however, that it was formed without bias after close and enthusiastic study of a considerable number of cases."[24]

Professor Fournier states: "I am satisfied that the inunction method is equal to, if not better than, any other. I am convinced that if we had to deal with an ideal patient who tolerated inunction, and carrried it out regularly and for the whole of the necessary time, we should attain a result which would leave nothing to be desired. I, therefore, conclude that inunction constitutes an excellent mode of treatment. The therapeutic effects are intense."[25] Sir Jonathan Hutchinson, in England, uses the "ingestion" method and prescribes grey powder with opium, not because he considers it more valuable than inunction, but because he "finds it more convenient in treating private patients." In the public service we are primarily concerned with practical utility and efficiency. The convenience of the physician and patient are secondary to the foregoing factors. Speaking from a service point of view, I mentioned at a discussion on the Modern Treatment of Syphilis in the Laryngological Section of the Royal Society of Medicine, London, on Jan. 8th, 1909, "that I desired to speak in favour of the inunction treatment of syphilis which I had extensively practised for 15 years in the British army. This method was also in routine use in the French, German, Bavarian, Italian, Hungarian, Swedish, and Danish armies, and in many large civil clinics on the Continent, notably Unna's, Pontoppidan's, and at Wiesbaden and Aix-la-Chapelle. I admitted that it was not a convenient method for private practice, but I considered it ideal for public institutions in dealing with in-patients well-fed in hospital and under control in 'experienced' hands. Relapse is less frequent after thorough courses of inunction as contrasted with injections. There is more rapid reduction in the induration of the chancre and the lymphatic glands, whilst the increase in weight is greater in early syphilis."[26] The inunction method to my knowledge was extensively employed in London for treating in-patients in the Foot Guards in the years 1895, 1896, and previously. Major Rayner of the Royal Horse Guards reports very favourably of it.[27]

Dr. J. Donelan (London) states "that both at the Italian Hospital and in private practice he had carried out the inunction treatment of syphilis for the last 18 years in some 30–50 cases yearly. He was still in touch with some of these cases, some of which had begun treatment 20 years ago, and there were no recurrences amongst them. On the other hand, he had seen at the hospital a large number of waiters and others who had been treated by intramuscular injection of soluble salts of mercury in Italy, France, South America, and other countries for 6 to 12 months. These people had come to the hospital suffering from recurrence, often of a severe character, in a year or two from the cessation of treatment. He thought with forethought and obvious precaution it was quite practicable to carry out the inunction treatment in private practice."[28] Dr. Lieven (Aix-la-Chapelle), who read the important paper on the Modern Treatment of Syphilis at the Royal Society of Medicine meeting, stated: "In our country (Germany), owing to the many disadvantages, if not dangers, associated with injections, the majority of the profession prefer treatment by inunction. The teachings of Sigmund have made it clear that inunctions can be carried out without necessarily producing mercurialism. I admit that treatment by inunctions is difficult to conceal from the patient's surroundings, and that the cure is dirty and disagreeable, but in spite of this its advantages are so great that whenever I have asked a medical man in our country what kind of treatment he would prescribe for himself there was no one who did not reply—inunction."[29] Colonel Lambkin recently stated: "Inunction is the oldest known method of administering mercury and it has always been an enigma to me why England has not taken the example of Aix-la-Chapelle, for there during the last century and a half the inunction method has flourished in the most successful manner."[30] The inunction method of treating syphilis is very extensively and thoroughly carried out at Harrogate in England. The sulphur waters exist as at Aix; there are trained rubbers and every hydro-therapeutic requisite so essential for the adequate treatment of this disease. Owing to the foregoing reasons I consider that intramuscular injection of insoluble salts of mercury may possibly supplement but never supplant treatment by inunction methods where this latter excellent method is practicable in the early stages of syphilis.

I attach two tables showing important figures and facts from the Royal Herbert Hospital, Woolwich, where I have specially worked at this subject for the past four years. Both tables show that in the British army gonorrhœa apparently causes as much medical inefficiency in hospital as, if not more than, syphilis owing to the greater number of cases and the longer duration of stay in hospital.[31]

Table I. shows that in the years 1901–03 inclusive there is a much greater incidence of all classes of venereal diseases than in the years 1904–08. In the years 1901–03 the system of collecting venereal statistics throughout the army was inaccurate and misleading. This was later rectified in the year 1904, the term "primary" syphilis which included numerous errors of diagnosis being entirely done away with and only undoubted syphilis shown.[32] The reduction of syphilis in the years 1905–08 is very marked. Further, the systematic out-patient attendance of syphilis cases began in 1904. This had not previously been in regular existence.[33] In 1905 the method of treating both syphilis in-patients and out-patients at Woolwich was by intramuscular injection of insoluble grey oil. A very large number of cases—namely, 54—were re-admitted to hospital for relapse, and they remained in hospital for very long periods as evidenced by the syphilis register. In October, 1905, the experiment was tried of treating all in-patients by inunctions of unguentum hydrargyri B.P. with daily baths, and out-patients ordinarily with intramuscular injections of standardised grey oil. This procedure was continued in the years 1906, 1907, and 1908, with excellent results, and, as previously explained, a very marked reduction in the relapse of syphilis ensued. In 1907 and 1908 the practice was further initiated of inspecting gonorrhœa cases for a month after discharge from hospital on the lines suggested in a former article.[34] This has effected a marked reduction in admissions for relapse, and in the number of cases of complications, such as

orchitis, arthritis, and stricture. As regards Table II., the strength of the garrison naturally varies with temporary movements of troops, but infected women remain. The "weekly" attendance roll is for out-patients under treatment or supervision in the first year of contracting syphilis. The "monthly" attendance roll is for out-patients over a year under treatment and waiting between courses of injections when they are again put back on to the "monthly" roll. This works well with commanding officers and men. The figures for the year 1902, just after the South African war, are very high and would appear to show the need in large garrisons for legislative action on the lines in vogue in India (Cantonment Act, October, 1897) where, as explained in the body of this article, an enormous reduction of disease has been effected since 1897. In England the Contagious Diseases Acts, 1864, 1866, and 1869 are not repealed but only in abeyance, I trust temporarily, and hope that they will be remodelled on the lines of India. The foregoing figures for one station (Woolwich) refer to soldiers under effective control whilst civilians are not. There is just as much, if not more, venereal diseases amongst the civil population, but as no records are kept naturally the Army appears more *en évidence*, as pointed out in Dr. Pernet's paper, quite apart from the fact "that single men in barracks are not plaster saints" (Rudyard Kipling). If the underlying principles of accurate record, systematised treatment, and notification were adequately recognised and fully acted upon in civil communities (as in the Army) a large amount of preventable disease and suffering amongst innocent women and children would be obviated, the excessive expenditure on hospitals, insane asylums, and prisons would be appreciably lessened, crime reduced, and more money find its way into the State coffers.

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TABLE I.—*Annual Statistics for Venereal Diseases amongst "Local" Troops (Woolwich).*

Year.	Average daily strength of garrison.	All diseases admission ratio per 1000.	All venereal diseases admission ratio per 1000.	Syphilis.				Gonorrhœa.				Soft chancre.			
				Admissions (actual number).	Constantly sick.	Ratio per 1000.		Admissions (actual number).	Constantly sick.	Ratio per 1000.		Admissions (actual number).	Constantly sick.	Ratio per 1000.	
						Admissions.	Constantly sick.			Admissions.	Constantly sick.			Admissions.	Constantly sick.
1901 ...	6010	534·27	126·5	236	41·88	39·26	6·96	347	30·42	61·06	5·06	158	16·32	26·28	2·71
1902 ...	6020	521·09	307·64	379	32 87	62·95	5·46	1384	25·30	229·9	4·2	89	17·61	17·78	2·92
1903 ...	5484	529·18	161·56	477	54·38	86 97	9·11	325	28·27	59·24	5·15	84	6·34	15·31	1·15
1904 ...	5311	496 52	131·04	331	56·76	62·32	10·70	237	26·71	49·62	5·03	128	15·91	24·10	0·21
1905 ...	4966	489·12	85·17	202	30·30	41 49	6·14	167	20·61	33·83	4·23	56	6·18	11·27	1·24
1906 ...	5096	549·64	76·92	129	13·85	15 12	2·72	220	20·41	43·18	5·15	43	3·25	8·44	0·64
1907 ...	4702	596·76	80·6	87	12·79	18·50	2·71	195	29·16	41·45	6·18	97	10·98	10·63	2·33
1908 ...	5666	547·47	40·06	53	6·12	8·75	1·28	154	23	32·37	4·88	20	2·26	4·23	0·48

TABLE II.—*Monthly Statistics from January to July, 1909 (Woolwich).*

Month.	Average daily strength of garrison.	Average number of men constantly sick.				Syphilis register.								
		Syphilis.	Soft chancre.	Gonorrhœa.	Venereal sores awaiting diagnosis.	In hospital at end of month.	Monthly attendance.	Weekly attendance.	Total.	Placed on syphilis register first time.	Placed on syphilis register (transferred from other stations).	Struck off register on completion of treatment.	Transferred to other stations or become ineffective.
January	6201	17·66	4·06	20·87	1·64	14	16	46	76	6	1	2	6
February	6021	12·0	2·75	26·14	2·03	10	23	47	80	5	2	—	3
March	5827	12·8	2·0	18·35	3·22	15	14	43	72	3	3	6	8
April ...	5340	9·93	0·83	17·06	2·83	10	23	48	81	5	5	—	1
May ...	4348	10·25	1·25	22·25	1·41	13	23	46	82	5	3	1	6
June ...	3860	16·07	—	16 57	1·33	11	24	52	87	10	1	—	6
July ...	3854	9·97	0·35	13·0	2·87	11	10	58	79	3	2	—	13

THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—The sixty-eighth session of the School of Pharmacy will be opened at Bloomsbury-square on Sept. 29th at 3 o'clock, when the President will present the Hanbury gold medal to Professor Alexander Tschirch, of Bern University, who will deliver the inaugural sessional address.

PUBLIC HEALTH IN HASTINGS.—The quarterly report of Dr. A. Scarlyn Wilson, medical officer of health of Hastings, states that during the three months ended June 30th there were registered 131 births of males and 150 births of females, giving a birth-rate of only 16·5 per 1000 of the estimated population, a rate considerably less than in any earlier year at this season. The lowest previously recorded birth-rate was 17·3 per 1000 in 1908. The deaths recorded in the quarter numbered 210—namely, 82 of males and 128 of females. Included in this total were the deaths of seven non-parishioners, which being deducted there remained 203 deaths, yielding a death-rate for the quarter of only 11·9 per 1000 compared with 13·0 per 1000 last year. There were 17 deaths of infants under one year of age, being only 60 per 1000 of births and 84 per 1000 of all deaths. Deaths from the seven principal epidemic diseases were only three in number, and the zymotic death-rate was thus as low as 0·18 per 1000—the same as in the first quarter of the current year. Dr. Wilson remarks that from the Registrar-General's reports it appears that both in the whole year 1908, and in the first quarter of 1909, Hastings stood first among the 76 large towns of England in the low rate of its zymotic mortality.

CONGENITAL DISLOCATION OF THE HIP-JOINT: THE ULTIMATE RESULTS OF THE MANIPULATIVE OPERATION, AND A NOTE ON A NEW OPEN OPERATION FOR RELAPSED CASES.

BY J. JACKSON CLARKE, M.B. LOND., F.R.C.S. ENG.,
SENIOR SURGEON TO THE HAMPSTEAD AND NORTH-WEST LONDON HOSPITAL AND SURGEON TO THE ROYAL NATIONAL ORTHOPÆDIC HOSPITAL.

IN THE LANCET of March 9th, 1907 (p. 650), I published a paper on the post-operative treatment required after the reduction of a congenitally dislocated hip-joint. Since that date I have ascertained the present state of my first series of ten consecutive cases, operated on in 1903 and 1904. Five of the patients in question were shown together with their skiagrams taken before operation at a meeting of the Royal Society of Medicine in May last. Two of these patients are shown in Fig. 1 and Fig. 2. Apart

FIG. 1.

Reproduction of a recent photograph of a patient who was operated on in 1904 for a congenital dislocation of the right hip-joint.

FIG. 2.

Reproduction of a recent photograph of a patient who was operated on in 1904 for double congenital dislocation of the hip.

from a slightly smaller muscular development in the right lower limb in Fig. 1, there is in neither of these cases any defect whatever or any clinical evidence of any abnormality in the previously deformed joints. The same is true of two of the other five patients shown at the meeting. The fifth, a girl now aged 13 years, was operated on in 1904 for double dislocation; the result is that the right joint is normal whilst the left is firmly replaced beneath the anterior superior iliac spine (anteverted), and the child walks firmly without any trace of the rolling gait characteristic of this deformity. The range of movement is normal in all the joints. Fig. 3 and Fig. 4 are taken from skiagrams by Dr. W. Ironside Bruce, whose report on them reads: "The head of the femur is seen to be in excellent relationship to the acetabulum."

The post-operative treatment lasts about 12 months from the date of operation, and when the condition of the joints has remained unchanged for four years or longer after this period of supervision the results may without risk be looked upon as permanent.

The cases included in this first series presented 12 dislocations; of these eight are cured, one is materially improved, and three failed. But I do not think that we need despair of the residue of cases in which the manipulative method fails. In one case where I had twice performed Lorenz's manipulative operation and a relapse had followed each time, owing

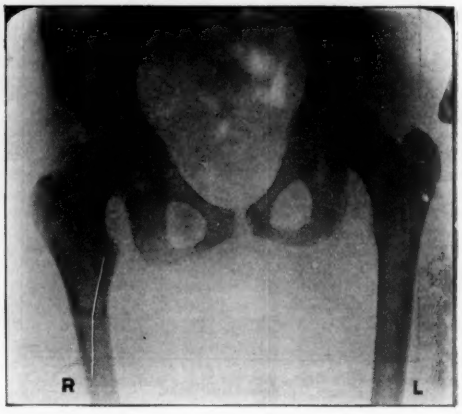
FIG. 3.

Skiagram of the hip-joints of the patient shown in Fig. 1.

to a deficiency in those parts of the ilium and ischium which form the upper and posterior borders of the acetabulum, I devised and carried out an open operation which has proved successful.

The operation consists in exposing the joint from behind, making a small opening in the lowest limit of the posterior aspect of the capsule, and introducing an elevator to raise the periosteum and with it the cotyloid ligament for a short distance at the upper and posterior borders of the acetabulum. Next three stout silk stitches are passed in turn through the periosteum thus raised into the joint cavity

FIG. 4.



Skiagram of the hip-joints of the patient shown in Fig. 2

under the cotyloid ligament, out of the capsule again and through a fold of the capsule, then once more through the capsule near its femoral attachment, where the two ends are tied. These stitches remove the over-distension of the back of the capsule and hold the cotyloid ligament over the outer part of the head of the femur. The limb is put up in plaster as after the manipulative operation, which must always have preceded this

open operation. The post-operative course was quite like that after the manipulative operation, and there was no evidence of intra-articular adhesions being present when the plaster was removed.

This proceeding differs from the open operations of both Hoffa and Lorenz, which involved an excavation of the acetabulum and, when necessary, a re-shaping of the femoral head through a free opening in the joint capsule.

Portland-place, W.

A CASE OF JUVENILE MYXŒDEMA.

BY DAVID A. THOMSON, M.A., M.B., B.S. GLASG.

A GIRL, aged 18 years, was first seen on March 12th. Her height was the first thing that attracted attention. She was only 40 inches high, and it was difficult to believe that she was 18 years of age. At first sight she would have been judged to be six or seven years of age. Her weight was 58 pounds. Her face was large and bloated, the eyelids were puffy, and the teeth were the decayed remnants of the first set. The skin was dry, and the hair was thin and also dry. In the supra-clavicular regions large pads of "fat" were evident. The abdomen was very swollen—indeed, her mother said she thought that a growth must be present there. The facial expression was indicative of mental inadequacy. The child remained silent and still in the consulting room, nor would she answer any question. When spoken to she simply laughed. The mother said that the child had developed properly until six years of age, when she was noticed to cease growing and become fatter. She would sit in a corner of the house apart from everyone and take no interest in anything, not caring to join other children in play. Everything seemed a trouble to her, and walking any distance was entirely out of the question. Years passed on without any alteration in the condition. The menstrual periods never developed.

The differential diagnosis lay between juvenile myxœdema, infantilism, and chondrodystrophia fœtalis. The absence of enlargement of the articulations put out of count the last mentioned, and the mucinoid deposits in the supraclavicular region and over the body generally, the dry skin, the dry hair, and the general mental deficiency, the state of infantilism. Accordingly the diagnosis of juvenile myxœdema was made and treatment was begun. Her photograph shown in Fig. 1 will indicate the general features of the case prior to treatment. Thyroid treatment was immediately begun, two grains of desiccated thyroid substance being given for a fortnight, the dose being then doubled. On April 12th, since no improvement was manifest, iodothyrine was tried in the following doses, and with the following results:—

	Iodothyrine.	Weight. lbs.	Height. ins.
April 12th	1 grain night and morning daily	57½	40
,, 20th	1 ,, ,, ,, ,,	56½	40
,, 27th	1½ grains ,, ,, ,,	56	40
May 4th	1½ ,, ,, ,, ,,	54½	40¼
,, 19th	1½ ,, ,, ,, ,,	52	40⅜
,, 25th	2 ,, ,, ,, ,,	51	40⅜
June 2nd	2 ,, ,, ,, ,,	51	40⅜
,, 8th	2½ ,, ,, ,, ,,	49	40½
,, 15th	2½ ,, ,, ,, ,,	49	40½
,, 22nd	5 ,, ,, ,, ,,	48	40½
,, 29th	5 ,, ,, ,, ,,	47	41
July 14th	5 ,, three times daily	47	41¼
,, 20th	5 ,, ,, ,,	47	41½

FIG. 1.

Before treatment.

FIG. 2.

After treatment.

At this juncture she began to show signs of over-dosage, and her weight had remained stationary for some time. But attempts were made to find the dose requisite for the stage at which she had arrived, and finally she was given one grain daily, which dose never required to be increased. She has neither gained nor lost weight. Her height and weight at the time of writing are as follows: August 4th: weight, 47 pounds; height 42 inches. Her photograph was again taken (Fig. 2), and here is revealed the real state of affairs. Her face is intelligent and has lost the dull, heavy, idiotic expression—in the words of her Yorkshire parents, "She

favours a child." The supraclavicular pads of "fat" have disappeared entirely. The arms, too, and the legs have become more natural in appearance. The patient's own description of herself is that "her limbs feel looser." She can walk with ease a distance of five miles—a most striking fact when compared with her former lethargy. She enters into the games of other children and can carry a bucket of water from the spring—a thing unheard of in her life before. The hair is glossy and thick and her decayed teeth are being replaced by the second set gradually, three new teeth being present at the time of writing. From being a mute, silent member of the household she has become an active intelligent child. She engages in conversation of her own accord, whereas she would formerly scarcely reply to questions addressed to her. She can understand and enjoy a joke with the other members of the family. Her mother says that she has become a very "rough one." In her studies she has made remarkable progress. She could read only with great difficulty in January, but now she can read any child's picture-book with ease. Arithmetic formerly was far beyond her intelligence, but now she can add and subtract and do easy multiplication and division. In short, her condition both physically and mentally is one of progressive improvement. Menstruation has not yet appeared.

In closing the account of this unusually interesting case one might add that a comparison of the progress from March 12th and from April 12th seems to demonstrate clearly that to gain success in such cases a thoroughly reliable standardised preparation of thyroid must be used.

Saddleworth, Yorks.

CONCERNING TRYPANOSOMA DIMORPHON DUTTON AND TODD: T. CONFUSUM, *SP. NOVA.*

BY R. EUSTACE MONTGOMERY, M.R.C.V.S.,
AND
ALLAN KINGHORN, M.B. TORONTO.

IN their original description of the trypanosome of Gambian horse disease, afterwards named *T. dimorphon*, Dutton and Todd[1] make reference to three types or forms which may be encountered in the course of infection either in naturally attacked or experimental animals. They describe these as "tadpole," "stumpy," and "long," and figure each in the plates accompanying their report. The following is a synopsis of the morphological characters noted by these authors. "*Tadpole.*"—Represented in Plate 1, Figs. 6 and 8: "A very small organism, rather tadpole-shaped. ..... The undulating membrane is narrow and seen with difficulty." The measurements in stained preparations are: length 11 to 13 μ, width 0·8 to 1·0 μ. "*Stumpy.*"—Represented in Plate 1, Fig. 7: "A short thick body and a very short flagellum." The length varies from 16 to 19 μ and the width is from 3·4 to 3·5 μ. "*Long.*"—"The long form, Plate 1, Figs. 9 and 10, is characterised by a long thin body and a long flagellum. The posterior end of the parasite may be long (pointed or square-shaped) or stumpy and conical. The deeply staining macronucleus is ovoid in shape and lies longitudinally. ..... The length of such a parasite, including the flagellum, is 26 to 30 μ, width 1·6 to 2·0 μ. ..... This type can be recognised in fresh blood by its rapid movements and long flagellum, and is usually most numerous in the blood of an infected animal a few days before its death."

Referring to the strain sent to them from Liverpool, Laveran and Mesnil write as follows[2]: "We have seen short parasites, 10 to 15 μ long, by 0·7 to 1·5 wide, but have never seen forms 3·5 wide in good blood films. ..... We recognise the existence of a short form and a long form (average length 22 μ), the width of the former being about 1 μ and of the latter about 1·5 μ. It is particularly with regard to the long form that we differ from the English investigators, who describe and figure a long free flagellum. According to our own observations, the protoplasm of the body is continued along the flagellum almost or quite to the end. As a result, the really free part of the flagellum is very short, or even absent, in the long form as well as in the short."

Thomas and Breinl[3] make the following statement regarding the same strain as that employed by Laveran and Mesnil: "In no instance has the long form described by Dutton and Todd and possessing a long thin body and a free flagellum been seen; in this we are in accord with Laveran and Mesnil."

It is evident that the original description of Dutton and Todd has not been confirmed by those who have had the opportunity of working with the trypanosome brought back from the Gambia, insomuch that free flagellated forms have not been seen by subsequent investigators. The morphological descriptions of the other forms are in great measure substantiated, and there are no essential differences in the "animal reactions" established by various writers. Two hypotheses appear to have been offered to explain this discrepancy: (1) That for some inexplicable reason *T. dimorphon* has ceased to manifest itself as free flagellated forms; and (2) that Dutton and Todd were misled by a mixed infection of a trypanosome, which is now maintained as *T. dimorphon*, and a second which, like *T. brucei*, normally carries a free flagellum, and that this latter has since died out.

There is at the present time no evidence to show that a trypanosome can permanently vary its morphological features. Individual variations occur in every known species, sometimes to a marked degree; but despite the numerous generations which some trypanosomes have developed in laboratory animals it has never been suggested that a race differing in any essential morphological manner has been evolved[4] during the years some strains have been under continuous observation.

The hypothesis of a double infection, in the sense noted above, is improbable, even if the work had been conducted by less qualified observers than Dutton and Todd. A reasonably large amount of experimental work was carried out in the Gambia on the usual laboratory animals, and did the flagellated forms represent a specific entity, it is, to say the least, curious that its appearance in the blood should bear a more direct relation to the date of the host's death than to the date of inoculation. As an entity its appearance should have been made after a fairly regular incubative period, and not merely "a few days before death," as is reported to have been the case in naturally infected horses, nor, "as the disease progressed long and stumpy forms were seen, and the smaller tadpole-shaped parasites tended to disappear," which is the state recorded in experimental rats.

Again, insusceptibility towards trypanosomes is not an uncommon attribute of individual laboratory animals. In the experiments conducted by Dutton and Todd with the strain of Horse 1, six small animals remained uninfected after inoculation; it is highly improbable that all six should have possessed an equal degree of immunity to both trypanosomes (assuming the "tadpole" and "free flagellated" to be specifically distinct). And these six animals being resistant to both forms, it is curious that not one of all the other inoculated animals should have manifested resistance to the "tadpole," and should have shown up the "free flagellated" form alone. Neither of these hypotheses satisfactorily accounts for the disappearance of the flagellated form, but if we closely examine the evidence published in Dutton and Todd's report, an explanation may be traced therein which effectually accounts for this discrepancy. It is, in effect, that Dutton and Todd were dealing with at least two distinct trypanosomes in Gambian horses, and that the one they describe as *T. dimorphon* was never employed in Europe.

It will be observed that these investigators diagnosed trypanosomiasis in ten horses and studied the parasites in animals sub-inoculated from four—namely, Nos. 1, 5, 6, and 9. Four experimental animals were infected, from Nos. 5 and 9, but all died prior to May, 1903, so that neither strain reached England. Horse 6 was brought to England, only four sub-inoculations having first been made from it. This animal served as the origin of the strain employed by Thomas and Breinl, by whom it was sent to Laveran and Mesnil in Paris, where it is now maintained as *T. dimorphon*.

With the exception of these few experiments, all Dutton

[1] Liverpool School of Tropical Medicine, Memoir xi., 1903.
[2] Trypanosomes et Trypanosomiases, Paris, 1904.
[3] Liverpool School of Tropical Medicine, Memoir xvi.
[4] Unless the variable trypanosome with which Martini worked can be so described. See Zeitschrift für Hygiene und Infektionskrankheiten, vol. l., 1905, pp. 1-96.

and Todd's work was carried out on the strain of Horse 1. 40 animals were inoculated with it in the Gambia and the trypanosome was maintained for six generations in mice, rats, rabbit, guinea-pigs, dog, monkey, goats, and bovines. This horse died in 1902, but three animals, Goats No. 10 and 35 and Dog No. 11, in which trypanosomes had been seen, arrived in England in June, 1903. The other experimental animals were all dead, or had not become infected.

These three positive cases were taken over by Thomas and Breinl, who refer to them in their report as follows:—

Goat, Experiment 35. Inoculated by Dutton and Todd from Horse 1, November 28th, 1902, remained infected up to March 20th, 1903; it was then sent to England. In August, 1903, its blood was negative ..... and non-infective, even when injected in amounts of 2 and 3 c.c. It was reinoculated in October and became infected.[5]

Goat 10. Inoculated by Dutton and Todd, Oct. 15th, 1902 (from Horse 1). Appeared to have recovered in October, 1903. In March, 1904, it was killed by accident while being bled. A guinea-pig inoculated with 100 c.c. pure heart blood became infected after a prolonged incubation.

Dogs. Dutton and Todd brought back an adult bitch, Exp. No. 11, inoculated Oct. 16th, 1902, from Horse 1 and infected 6 days later. This animal, Aug. 31st, 1903, was well and strong, and its blood non-infective. It is still living, no parasites are seen, its blood in amounts of 2 and 3 c.c. is non-infective.

The guinea-pig inoculated from Goat 10 is therefore the only infected representative of this strain, and we have it on the authority of Dr. Thomas, who has very kindly placed his records at our disposal, that no further subinoculations were made. The strain of Horse 1, upon which the original description of *T. dimorphon* is based, has, consequently, never been employed in Europe. The strain which has been accepted as *T. dimorphon* is that of Horse 6.

If we may judge from the experiences of most workers on trypanosomiasis in Africa, it would be strange that ten horses from various parts of the Gambia Colony should have been infected by an absolutely identical trypanosome; it would be more probable that, in morphology or animal reaction, some of these organisms should show such differences as are nowadays held to constitute species. The imperative necessity for genealogical records of strains is fully exemplified in the present case. Even animals in the same herd may, as we have seen at Broken Hill and Kambole, show distinct trypanosomes; and it is not safe to rely upon the morphological characters alone unless peculiar as evidence of identity.[6]

We emphasise the correctness of Dutton and Todd's diagnosis of their species *T. dimorphon*, since in North-Western Rhodesia we have regained a form responding in all essential particulars.[7] In a forthcoming report we publish a series of micro-photographs illustrating the polymorphic character of this species, and demonstrating the free flagellated forms. By the best means in our power, those of observation and control inoculation, we are satisfied that the strain employed was not contaminated by such a form as *T. brucei*. The development of a free flagellum in guinea-pigs and the reappearance of "tadpole" forms in a sheep and a goat inoculated with such blood is, for us, confirmatory evidence of the rectitude of Dutton and Todd's observations.

As laid down in the original description, *T. dimorphon* is characterised by its ability to develop a free flagellum; no trypanosome which lacks this power should bear that name. It is therefore advisable, though the inconvenience is manifest, to adopt a specific designation for that form which is now maintained at the Institut Pasteur, Paris, as *T. dimorphon*, which, as we have shown, is a strain distinct from that investigated by Dutton and Todd.

With our limited knowledge regarding the classification of the genus *Trypanosoma*, and a lack of uniformity amongst protozoologists as to what characters are requisite to constitute a good species, there may be hesitation in offering or accepting a new name for a well-studied type. But in view of the evidence adduced, it appears necessary to regard that form now frequently referred to under the cumbersome titles of *T. dimorphon sensu* L. and M., *sensu latiore*, &c., as distinct from *T. dimorphon* Dutton and Todd, and, both on the grounds of zoological requirements and those of simplicity, we suggest that the trypanosome carried to England by Dutton and Todd in Horse 6, and now maintained at the Institut Pasteur in Paris, should be known as *Trypanosoma confusum* Montgomery and Kinghorn, 1909.

In a note on the nomenclature of trypanosomes recently published,[8] we arranged in the group *dimorphon* the species *T. dimorphon* (*sensu* Dutton and Todd *et sensu* Laveran and Mesnil), *T. pecandi* and *T. congolense*. While this arrangement may still be considered of service to the worker in the field, the definition of the group may, with advantage, be emended, since it would appear that *T. congolense* can hardly be considered dimorphic, though showing the characteristic "tadpole" of the group.

A. Trypanosome, pathogenic to most domestic animals and producing a rapidly fatal infection in the usual laboratory animals. (*a*) ..... of large and fairly constant size (20–35 μ) and carrying a distinct free flagellum: monomorphic. Type: *T. evansi*. (*b*) ..... occurring frequently as an organism of small size (10–15 μ) devoid of any free flagellum (tadpole forms): mono-, di-, or poly-morphic, being in some species capable of development into forms similar to those of the *evansi* group. Type: *T. dimorphon*.

B. Trypanosome, pathogenic to certain domestic animals and without apparent effect when inoculated into the usual laboratory animals. *T. nanum*, *T. vivax*, *T. cazalboni*.

We have no further remarks to make on the *evansi* and *nanum* groups, but it seems possible to analyse the *dimorphon* group in a manner which may be helpful to a worker in the field. We have already emphasised that this arrangement must be employed as a guide only, since accurate zoological classification appears impracticable at the present day, and final diagnosis should remain the prerogative of an acknowledged centre where all types are maintained.

Group. Dimorphon. Trypanosome, pathogenic towards most domestic animals and producing a rapidly fatal infection in the usual laboratory animals, occurring frequently as an organism of small size (10–15 μ), devoid of any free flagellum (tadpole forms): mono-, di-, or poly-morphic. (*a*) *Monomorphic*, hardly changing from the tadpole forms: *T. congolense*. (*b*) *Dimorphic*, (*a*) occurring as tadpole forms and capable of development into trypanosomes of 22 to 24 μ, but devoid of a free flagellum: *T. confusum*. (β) Tadpole forms rarely, if ever, seen; occurs in blood of infected animals under two types, one or other of which may largely preponderate: (1) a "short" form of 14–20 μ, relatively very broad, with a wide developed undulating membrane: no free flagellum; and (2) a long form recalling the *evansi* group: intermediate forms are very exceptional. *T. pecaudi*. (*c*) *Polymorphic*, occurring commonly as tadpole forms, but capable of development into free flagellated forms recalling *T. evansi*: intermediate forms are common. *T. dimorphon*.

[8] Annals of Tropical Medicine and Parasitology, ii., 1909, 5, pp. 333–344.

[5] This may also be used as an argument that the strain of trypanosome subsequently inoculated (Horse 6) was not the same as that originally employed.

[6] It is not difficult to imagine a case where different animals of a herd are infected with such trypanosomes as *T. nanum* and *T. congolense*, which may be morphologically indistinguishable. The former is utilised by an observer in the field and found non-pathogenic to small animals; with a view that the trypanosome is identical, an animal infected with the latter is sent to Europe. The confusion that would result in the respective reports would be irreparable.

[7] Annals of Tropical Medicine and Parasitology, ii., 1908, 2, pp. 97–132.

THE VETERINARY CONGRESS.—The Ninth International Veterinary Congress was closed at The Hague on Saturday last after a successful week. The proceedings attracted 1400 members, of whom unfortunately only 50 were from the British Isles. Sir John McFadyean represented England, Professor Dewar Scotland, and Professor Mettan Ireland. The proceedings were under the patronage of H.R.H. Prince Henry of the Netherlands, Duke of Mecklenburg, who was present on more than one occasion. Mr. W. C. Schimmel, Professor of the State Veterinary School, officiated as president. Mr. F. Bullock, honorary secretary of the National Committee, made arrangements for the travelling and accommodation of the British party, and thanks to the courtesy of the Great Eastern Railway special concessions were granted to members travelling to the Hook of Holland. Entertainments were provided every evening, including a reception at the Palace by H.R.H. Prince Henry; also one by the Cabinet Ministers. On Thursday a banquet was held in the Kurhaus, at which about 600 members were present. A gala performance was given in the theatre at The Hague on Friday evening, and on Saturday the Congress was closed by the Minister of Agriculture, Industry, and Commerce. A great amount of useful work was accomplished.

Reviews and Notices of Books.

Studies on Immunity. By ROBERT MUIR, M.A., M.D. Edin., Professor of Pathology, University of Glasgow; in collaboration with CARL H. BROWNING, M.D. Glasg., ALEXANDER R. FERGUSON, M.D. Glasg., and WILLIAM B. M. MARTIN, M.B., Ch.B. Glasg. London: Henry Frowde and Hodder and Stoughton. 1909. Pp. 216. Price 7*s.* 6*d.* net.

THIS volume contains a collection of material which has already been published in other forms, some of it having appeared in our own columns. The experimental investigation of the phenomena of immunity involves highly complex technical considerations, which are frequently very difficult for the ordinary reader unversed in the niceties and details of laboratory technique to follow, but the results obtained are often of considerable practical importance, and must in many instances be understood in order to obtain a grasp of the general principles of immunity and of their application to the actual treatment of disease. In this collection of papers sufficient details are given to render the nature of the experiments clear and to make their purpose intelligible, while the deductions made from them are invariably expressed as simply as the complex nature of the subject permits. The volume does not pretend to be a complete account of the general state of our knowledge of immunity, but the researches which Professor Muir and his collaborators have carried out have covered so wide a range in this field and have been so carefully described and edited in this volume that it forms a useful addition to the literature of the subject, and one which should be useful to the general reader as well as to those working in the study of immunity.

The first part deals with the properties of hæmolytic sera. The general phenomena of the production of antibodies are indicated, the three chief varieties are differentiated, and some essential definitions are given in an introductory section. The three factors in the case of a hæmolytic reaction are clearly described—viz., the receptors of the red blood corpuscles which act as antigens, the corresponding anti-substances known as immune bodies, and the complement or normal constituent of the serum, which unites through the medium of the immune body. The properties of immune bodies are then considered in detail, including their specificity, their mode of union with red corpuscles in the case of hæmolytic sera, their dissociation from this union, and their condition after hæmolysis. The mode of action of the immune body and its constitution are considered, and the two views of Ehrlich and Bordet are discussed and submitted to experiment. According to Ehrlich the immune body is regarded as acting as a link between the complement and the cell receptor—that is, as an amboceptor, whereas in Bordet's view the immune body is regarded as a sensitiser, or *substance sensibilisatrice*, which produces a change in the receptors whereby they are enabled to combine with complement. Professor Muir concludes from his experiments that the latter view is more probable, that the existence of a special complementophile group in the immune body is not proved, and that therefore the use of the term amboceptor does not appear to be justified. The properties of the complement are next critically analysed. Its direct union with cells and its union through the medium of an immune body are considered, and the firmness of these unions is demonstrated. The existence of complementoids or modified forms of complement possessing combining powers, but not toxic properties, analogous to the toxoids described by Ehrlich, is also established, and these properties are discussed in detail, with the result that Ehrlich's views in regard to these bodies are completely confirmed. An interesting series of experiments was devoted to studying the combined properties of complements in relation to their toxic action, or, in the Ehrlich terminology, the relations of the haptophore and zymotoxic groups of the complements. It was found that deficiency in the action of complement does not necessarily imply want of combining affinity, but may be due to non-sensitiveness of the tissue molecule to the zymotoxic group. An interesting fact brought out is the relative non-sensitiveness of the corpuscles of an animal to the zymotoxic group of its own complement. It was also shown that complement could produce an agglutinating action on the corpuscles of an animal through the medium of an immune body derived from another animal, this being a different reaction from that produced by an ordinary agglutinin. The formation of anti-immune bodies is described and their properties are investigated. The nature of the third factor in the hæmolytic reaction is then considered—viz., the hæmolytic receptors of the red corpuscle. It is shown that these are comparatively stable molecules and that they are not destroyed by laking with water or ether.

The second part is devoted to a study of the properties of an anti-serum towards a serum and to a careful consideration of the phenomenon of deviation of complement, which has already yielded important practical results. The production of an anti-serum to the serum of any animal is described, and it is further demonstrated that the combination of the serum with its anti-serum will take up many but not all complements. Experiments are described which demonstrate that the molecules in the serum, which in association with the anti-serum deviate complement, are different to the hæmolytic receptors. The relation of the process of deviation of complement to the precipitation which often, but not invariably, occurs when serum and anti-serum are mixed is discussed. The deviation test is found to be more delicate than the precipitin test, though the results of both are in general agreement as regards specificity. The importance of these results in regard to the existence of anti-complements is indicated, and the opinion is expressed that it is an open question as to whether anti-complements exist, since the phenomena formerly attributed to them and adduced as proofs of their presence can be more easily explained by the deviation of complement.

The third part of the book treats of the antibacterial properties of serum, the first phenomena studied being those of opsonic action. Professor Muir finds that the thermolabile opsonins of normal serum belong to the group of complements, whereas the thermostable opsonin of an immune serum is a true anti-substance and possesses the comparatively specific characters of antibodies in general. The bactericidal action of normal serum, first established by Nuttall in 1888, is then discussed, and its variations under different conditions. An addendum on the general properties of complements brings the book to a close. It will be seen from this summary of some of the chief problems dealt with that the subject matter is of a highly technical character, but it is all of great importance in regard to the study of immunity, and we welcome this record of good and laborious work emanating from a British laboratory.

Radiumthérapie. By Dr. LOUIS WICKHAM and Dr. DEGRAIS. With 20 plates in colour and 72 engravings. Paris: Baillière et Fils. 1909. Pp. 350. Price 18 francs.

ALTHOUGH a great number of articles on radium and radium treatment have appeared from time to time, and especially since the beginning of the present year, this work is the first that has been brought out to treat of the subject of radium-therapy exclusively and on an extensive scale. No one who listened to Dr. Wickham's demonstration on the

Therapeutics of Radium at the Royal Society of Medicine last May, or to his more recent address before the British Medical Association at Belfast, can doubt that he was the right person to undertake the chief share of this book, a perusal of which has left us with the impression that for some time to come the work will remain the standard classic on the therapeutics of radium, a subject which has expanded with encouraging rapidity.

It is the result of some years of work and is a record of the experience gained in about 1000 cases of every form of lesion likely to be benefited by radium treatment. In recording these cases we are at once struck by the accuracy in detail and a commendable absence of anything like exaggeration. At the beginning the methods of application, instruments, and applicators are described and illustrated. The methods of filtration and "cross-fire" as applied to tumours are explained in full, so that anyone fortunate enough to have access to a sufficient amount of radium can easily practise the methods which the authors have found so useful and efficient. The general characters of the radium reaction are next described, and then we come to the results obtained in treatment. Cancers and other malignant tumours, keloids, and nævi have all been subjected to the influence of this wonderful substance, and the results are surprisingly successful. The last section is devoted to the treatment of gynæcological cases, where the results have also been very satisfactory.

The book is profusely illustrated, many of the pictures being of full size and in colours. It is, of course, in diseases of the skin, nævi, and such superficial conditions that the most striking results are obtained with radium. The bright red nævus shown on Plate XIII. has disappeared under this treatment in a manner almost miraculous. We have nothing but praise for the book, the authors, and the work which led to the inception of this volume.

Der Arzt: Seine Stellung und seine Aufgaben im Kulturleben der Gegenwart. Ein Leitfaden der Sozialen Medizin. By Dr. med. MORITZ FÜRST, Hamburg. Leipsic: B. G. Teubner. 1909. Pp. 142. Price 1 mark. Bound in linen, 1 mark 25 pfennig.

IN this small book the author has attempted to give a concise but comprehensive survey of the work of the medical man in Germany. The book is a study of medical sociology, and every department of the social scheme is dealt with, or rather touched upon, in which medical activities play a part in the welfare of the nation. That these activities are extremely varied in their nature, and that they penetrate searchingly into the intimate life of the nation, is recognised by the author—this can be seen by glancing at the table of contents. Dr. Fürst deals with the general practitioner in town and country, the consultant and specialist in different branches of medicine, the medical officer of health, the Poor-law medical officer, the forensic medical official, the sanitary port authority, the medical service of the army, the hospital and sanatorium medical officer, the school medical officer, the police medical officer, and has something interesting to say of them all.

The first two chapters deal with medical education in Germany, which is in some ways more orderly than it is in England. The students attend one of the 21 German universities, where a unified curriculum is enforced—an arrangement which allows the student to visit various universities in turn. After five "semesters" (or half years) he is ready for his preliminary examination or "Vorprüfung," the so-called "Physikum." This lasts four days, and a thorough knowledge of anatomy and physiology is required from all candidates, while in physics, chemistry, botany, and zoology they are examined mainly on such points as have a distinct medical bearing. After ten semesters the student may present himself for the State examination; this is spread over three months, and embraces seven obligatory subjects: pathology, medicine, surgery, obstetrics and gynæcology, ophthalmology, mental diseases, and hygiene. He is also required to show knowledge of pharmacology, toxicology, and forensic medicine, and of the history of medicine; is examined in various special diseases, and must give proof of his familiarity with the laryngoscope and other special forms of instruments. When he is "approved" he may take his doctor's degree. This is accorded to a successful candidate after a *viva voce* examination over the whole field of medicine, followed by the production of a printed "dissertation" on some special subject. The fees for the degree of *doctor medicinæ* amount to from £15 to £30. Dr. Fürst estimates that a sum equivalent to at least £700 is required for the support of the student and for his fees during the five years involved in medical training; but this sum includes personal and travelling expenses and the expenditure on the year's military service. The lecture fees during the entire ten semesters amount to about £125, but living is still cheap in many of the German universities, which accounts for the German medical student obtaining for £700 what the English medical student at a university can hardly hope to get for much less than £1000.

The position of the medical man with regard to State insurance against sickness, accident, and invalidity is briefly and lucidly discussed in Chapter VII. and furnishes interesting information at the present moment. The minute exactitude with which legislation has tackled this subject is conspicuous, and so useful would these details be to many of our readers to whom the question of Poor-law medical relief is of particular interest that we believe an English edition of the work might have a sale. It is to be noted that the Poor-law medical officer enjoys a different position in Germany than what maintains in England. The Armenarzt is almost invariably a part-time official, is recognised as a powerful factor in preventive medicine, and he is encouraged to acquaint himself with the domiciliary conditions of his patients as well as with their diseases. In some towns, the recipients of Poor-law medical attendance may choose their medical adviser out of a list of four or five district medical officers, and the ordinary relation existing between the general practitioner and his patients is the one aimed at. Those of our readers to whom the German language offers no difficulties cannot do better than read this book and especially this section; it will considerably help them in making up their minds as to the lines which ought to be taken by those who have to frame legislation on the gigantic recommendations of the recent Poor-law Commission.

The book is written in a clear, terse style that is pleasant reading, and is well printed. It contains a useful series of bibliographical footnotes which form a valuable guide for more exhaustive information on the subjects under discussion. That it is published by B. G. Teubner, in their well-known scientific series, entitled "Aus Natur und Geisteswelt," speaks at once for it highly, for this is a series in which every name is a trustworthy authority on the subject dealt with.

On the Making of Gardens. By Sir GEORGE SITWELL. London: John Murray. 1909. Pp. 109. Price 5s. net.

Sir George Sitwell has here given us a very delightful essay, although it may be said, like the paths in a badly laid-out garden, to lead us nowhere in particular. For eloquent discourse upon the beauties of Italian gardens, where water and hillside aid the garden craftsman in every way, will not be of much assistance to the designer of a garden in the flatter country of England or in the far less sunny, if hilly,

country of Scotland. Sir George Sitwell in his first chapter gives an excellent account of how the ordered formal garden of the seventeenth century came to succeed the poetic and beautiful gardens of the sixteenth century, to be replaced after the middle of the eighteenth century, and in a revolt against formalism, with such atrocities as these: "The garden was deprived first of its boundaries and then of its flowers; sham rivers, dead trees, and broken bridges were planted in appropriate positions, while over the country side in the neighbourhood of the great houses there broke out a dreadful eruption of Gothic temples and Anglo-Saxon keeps, Corinthian arches and Druid amphitheatres, of classic urns, Chinese pagodas and Egyptian pyramids, all with inscriptions in Greek or black letter appealing to the eye of taste and to the tear of sensibility." Such were the abominations so amusingly satirised by Peacock, that admirable humorist. Mr. Milestone, the landscape gardener, it may be remembered, brought down to Headlong Hall a portfolio of designs which he expounded to the company. "Here," he said, "is a part of the grounds in its natural state. Here is a large rock, with the mountain ash rooted in its fissures ..... and from this part of it bursts a little fountain. ..... *Miss Tenorina:* 'O how beautiful!' *Mr. Milestone:* 'Beautiful, Miss Tenorina! Hideous. Base, common, and popular. Such a thing as you may see anywhere in wild and mountainous districts. Now observe the metamorphosis. Here is the same rock cut into the shape of a giant. In one hand he holds a horn, through which that little fountain is thrown to a prodigious elevation. In the other is a ponderous stone, so exactly balanced as to be apparently ready to fall on the head of any person who may happen to be beneath: and there is Lord Littlebrain walking underneath it.'" Again, when Mr. Milestone had seen Squire Headlong's grounds he remarked, "Accord me your permission to wave the wand of enchantment over your grounds. The rocks shall be blown up, the trees shall be cut down, the wilderness and all its goats shall vanish like mist. Pagodas and Chinese bridges, gravel walks and shrubberies, bowling greens, canals, and clumps of larch shall rise upon its ruins."

These were the follies of the landscape gardener, but the gardens upon which Sir George Sitwell would have us fix our attention are those wonderful Renaissance gardens of Italy where pergola and statue, fountain and pool, green hedge and cypress avenue unite with the house and the surrounding landscape to make a perfect whole. Regarding the garden only as a thing of beauty to the eye, he has some very illuminating remarks upon the complex mental impressions produced. Restfulness, he says, should be the characteristic of a well-ordered garden, and here alone has the book any particular medical interest. It is given to but few of us to have a garden such as those which are written of in this book, and which have "the sentiment attaching to objects that have been habitual sources of enjoyment to generation after generation," but even the smallest garden, acquired recently and stirring no ancestral memories, may be a fount of joy and a well of peace in these days of hurry and strife. Those who have to treat cases of mental disease know well the soothing influence of gardening upon the disordered brain, and to the wearied brain worker a garden is the best means of renewing his exhausted nerve energy, for gardening, like faith, is often "the substance of things hoped for, the evidence of things not seen." He to whom his garden is a real pleasure simply says, "Next year it will be better," and so contentment comes about. In all ages men have found contentment in a garden. Many of our readers will remember the picture which Virgil draws of the retired Cilician pirate in his garden at Tarentum, and even though our climate be not that of Southern Italy, yet an English garden has charms of its own and possesses that soothing influence on the mind of which the old Puritan poet sang—

> "Here at the fountain's sliding foot
> Or at some fruit tree's mossy root,
> Casting the body's vest aside
> My soul into the bough does glide;
> There like a bird it sits and sings,
> Then whets and combs its silver wings,
> And, till prepared for longer flight,
> Waves in its plumes the various light."

Sir George Sitwell's essay will introduce many to a side of gardening hitherto unknown to them.

The Fundamental Principles of Chemistry. By WILHELM OSTWALD. Authorised translation by HARRY W. MORSE. London: Longmans, Green, and Co. 1909. Pp. 349. Price 7*s.* 6*d.* net.

THE sub-title of this book, "an introduction to all text-books of chemistry," invites the criticism that a student—and the book is obviously intended for students as well as others—ought to have practical facts brought to his notice before he proceeds to the study of theoretical considerations. Professor Ostwald's book deals exclusively with fundamental principles, which, however clearly expounded must be incomprehensible to the absolute beginner. He is careful, however, to explain why he adopted this sub-title. He does not mean, we gather, that the beginner should absorb the entire contents of the book before he learns about, say, oxygen and chlorine as chemical individuals. On the contrary, he is quite of the opinion that a close personal acquaintance with a considerable number of important and characteristic substances is, and always must be, the foundation of all instruction in chemistry. This acquaintance once obtained, it becomes an obvious advantage to the student to have pointed out to him "the great connexions by which these separate facts are bound together into a unit; they may then be shown free from all that is individual, accidental, united into a great, simple whole." With this view all good teachers of chemical science will agree, but we still think that the sub-title would read better as a "companion" rather than "an introduction to *all* text-books of chemistry." It must be admitted, however, that the author introduces a difficult subject in an admirably clear manner. His definitions are straightforward and elementary, and the student is led step by step from simple to complex considerations until, if he only follow the writer attentively, the meaning of "the simple whole" will go straight home to his mind. The 11 chapters deal with much that has been the fruit of chemical investigation of recent years, the principles governing solution, reaction velocity, equilibrium, catalysis, isomerism, ions, and so forth, and no chemist has worked harder and more successfully at these questions than the author himself. The book, in fact, is that of a great authority on the modern conceptions of chemical science, and when we have said that no other recommendation to its study is needed.

Lectures to Practising Midwives. By VICTORIA E. M. BENNETT, M.B., B.S. Lond., Lecturer to Midwives for the London County Council, &c. With Preface by Mrs. MARY SCHARLIEB, M.D., M.S. Lond. London: Baillière, Tindall, and Cox. 1909. Demy 8vo. Pp. 270. 41 illustrations. Price 4*s.*

THE number of books written for midwives is becoming so large that there should be no difficulty in every midwife, whatever her grade of intelligence, obtaining a book suited to her mental capacity. The present work is undoubtedly a good one; it is written by a woman, which, considering the subject, is in its favour; it has the advantage of a preface written by another woman pointing out how good it is, and having the authority necessary to criticise such work; and,

lastly, it has the real advantage of being a most excellent little manual.

It is often difficult enough to remember the extremely low level at which elementary teaching has to be kept, even in the case of medical students, in order that they may clearly apprehend all that they are being taught. How much more difficult must this be in the teaching of midwives! The author has certainly succeeded in putting into fairly simple language the information she gives, and the style of the book is eminently practical. There are some minor criticisms which we have to make. An important omission is that nothing is said in the section on passing a catheter during the puerperium on the cleansing of the vulva before the catheter is passed. Nor is anything said as to the position of the patient. Let us hope this is because Dr. Bennett totally disagrees with the advice usually given in books for nurses and the method taught in most hospitals of placing the patient on her back; a bad position, and one which renders the passing of a catheter in a difficult case much more difficult. In all such cases, after delivery the patient should be placed on her side and the parts carefully cleansed with an antiseptic solution before the catheter is passed. In the section on the treatment of post-partum hæmorrhage we entirely disagree with the advice given that the nurse is to try bimanual compression of the uterus or to plug it. We wonder if the author has ever done either; we imagine not. Bimanual compression of the uterus in a severe case of post-partum hæmorrhage, the only condition in which it will be necessary, is a very difficult and often most unsatisfactory procedure, and we certainly do not believe that the ordinary midwife could do any good by attempting to plug the uterus. A far better plan would be to teach the midwife to compress the abdominal aorta, a certain method, one requiring no special apparatus and no great amount of skill.

The book is certainly a good one, although, as we have indicated, it could, in our opinion, be improved in several directions. But we admit the great difficulty which any writer or teacher must have who desires to be elementary, inclusive, and clear at the same time, while the scope of the registered midwife's work, which the book is designed to meet, can never itself be exactly defined by any syllabus.

Medizinal-Berichte über die Deutschen Schutzgebiete für das Jahr 1907–08. (*Medical Reports on the German Protectorates for the Year 1907–08.*) Berlin: Published for the Imperial Colonial Office by Ernst Siegfried Mittler and Son. 1909. Pp. 528. Price 9 marks.

THESE annual medical reports on the German protectorates furnish a good deal of useful and interesting information on tropical disease and hygiene. The present volume for 1907–08 has been issued much earlier than usual; it contains some 200 more pages than its predecessor, and is illustrated by 14 plans and sketches and six reproduced photographs. Considerable attention has been devoted during the year to malaria and blackwater fever, which are somewhat prevalent in Germany's African possessions, and the records and remarks contain valuable information for our colonial authorities.

The prevention of malaria is fully discussed by the several medical officers from their own points of view. There seems to be a general consensus of opinion in favour of systematic examinations of the blood of natives and Europeans to discover those who are acting as carriers of the malaria parasite, and in order that these persons may undergo a course of treatment by quinine. The usual method is to administer one gramme of muriate of quinine twice weekly for a period of three months, the dose being proportionately reduced for children. The value of the different salts of quinine is discussed, but the bisulphate which is used by British medical officers does not find much favour with their German brethren. Owing perhaps to the well-known views of Koch, there appears to be an apprehension that malaria patients in German Africa treated with quinine may develop blackwater fever. Some of the medical officers, indeed, withheld quinine altogether, with the result that the duration of the acute stage was much prolonged. Now some of them treat the malarial fever patient with small, frequently repeated doses—0·2 gramme of quinine five times daily—with, it is said, good results. We are told in several of the reports that both malaria and blackwater fever show signs of decreasing. For prophylactic purposes some prescribe one gramme of muriate of quinine every fourth day; others, to avoid the physiological action of the drug which causes discomfort to some persons, give smaller doses repeated at short intervals. In addition to quinine prophylaxis, destruction of mosquitoes and their larvæ, the abolition of all places likely to afford facilities for breeding of these insects, the filling of shallow pools with sand, or the treatment of the surface of the water with petroleum or other oil were carried out. The screening of windows, doors, and verandahs in the houses of Europeans was strongly urged, as was also the use of mosquito nets at night. In some places, especially in South-West Africa, the employment of metal gauze for screening purposes could not properly be carried out, since owing to the dampness of the climate the wire gauze quickly rusted and became broken and useless. Also in some places the collections of water which needed treatment were so large and numerous that it was impossible to deal with them satisfactorily. In some of these German protectorates sanitation is rapidly improving, but the indolence and the apathy of the negro form a sore hindrance to progress.

The war against the Hereros in South-West Africa was over in the year under consideration, but a number of prisoners still remained in the camps where they had been detained. During the year 2090 of these prisoners suffered from scurvy and 301 of them died from it. From observations made by the medical staff it was found that the cases treated with milk recovered more quickly from scurvy than those treated in other ways. As regards sleeping sickness, the whole of German East Africa has been surveyed and the infected districts, along with the fly areas inhabited by the glossina palpalis, have been carefully mapped out. On a map are also shown the areas in which leprosy and ankylostomiasis are respectively endemic. An interesting account is given of an epidemic of cerebro-spinal meningitis in Togoland. In the report on New Guinea some information is given as to criminal poisoning with native drugs. In several of the reports a section is devoted to veterinary science, and many valuable facts relating to diseases—e.g., coast fever, trypanosomiasis, piroplasmosis, &c.—are given. The volume concludes with a list of the scientific contributions published during the year by the medical and veterinary staff of the German protectorates.

LIBRARY TABLE.

Religion and Health. By LEN G. BROUGHTON, M.D., LL.D. London: Hodder and Stoughton. 1909. Pp. 54. Price 1*s.*—This is a simply written little pamphlet concerning the recent "Immanuel Movement" which has sprung up in America with Boston as its headquarters. There is nothing new in the book, the gist of its teaching being the truism that the mind has power over the body and that "suggestion" is helpful in certain diseases. It is well that this should be widely recognised, for the knowledge that the power of suggestion can be rightly used may help to keep many a one out of the hands of the quack. Dr

Broughton, in the course of his remarks, says that, as regards the new movement, he does not believe that it has any place "as a movement keyed to psychic healing alone." He adds, "I do not believe that there is any department of human need that the Church should not endeavour to supply," and he goes on to recall the all-embracing activities of the Church in early times. Such activity is impracticable now, but we have often thought that in one way the English Church might take a valuable share in "healing." Her clergy might have some training in the treatment of mental troubles, meeting medical men on the common ground of psychology. One of the most notable features of the Roman Catholic Church is the methodical manner in which her priests are trained to deal with the various problems in the conduct of life, and as to what should be done in the difficult circumstances which from time to time arise and sadly try the mental equilibrium. The diagnosis of psychical affections due to moral trouble has been carefully studied in fact in the Roman communion, which recognises specialists in the different psychical troubles just as there are specialists in medicine or surgery. This, it seems to us, is a field in which any Church might exercise a therapeutic power. We are not, of course, referring to obvious mental disease, which must be treated by medical men, and the more the priest knows of practical psychology the easier will it be for him to see his limitations. As to the aid of the Church in physical sickness, we should be the last to minimise the power of prayer or of the consolations of religion for those to whom they appeal. Both the priest and the medical man may well fight sickness together, and so long as neither usurps the function of the other the assistance of both will in suitable cases be of value to the patient.

Gynäkologie. Von Professor Dr. SIGMUND GOTTSCHALK in Berlin. Vienna and Leipzig: Alfred Hölder. 1909. Crown 8vo. Pp. 370. 46 Illustrations and one coloured Drawing. Price M.6.—This little work of Professor Gottschalk is a good example of its kind. It is one of the series of Die Medizinische Bibliothek of Dr. Luithlen of Vienna. It is clearly and concisely written and well illustrated. Although the page is small many of the illustrations are on a large scale and therefore doubly valuable. The essential facts of gynæcology are presented in an attractive manner and the work is not overloaded with operative details. An interesting operation for prolapse of the uterus is described in which after removal of the uterus the two broad ligaments are sewn together over the base of the bladder and in this manner any chance of a recurrence of the cystocele is obviated. The author is in favour of the abdominal radical operation for carcinoma of the uterus, but points out the impossibility of any operation being able to remove the whole of the glands or the cellular tissue of the pelvis, and in this contention we quite agree with him. This book should prove useful to students and practitioners familiar with German as an elementary handbook on the subject.

The Theory of Valency. By J. NEWTON FRIEND, Ph.D. Würz., M.Sc. Birm. London: Longmans, Green, and Co. 1909. Pp. 180. Price 5*s*.—This little book is another welcome and valuable addition to the series of text-books of physical chemistry issued under the able editorship of Sir William Ramsay. It stands by itself, inasmuch as no treatise before it existed which is exclusively devoted to the subject of valency, and apparently German literature is in a similar position. The treatment is of the most interesting description, and the author writes in clear terms. He starts with a history of the subject and subsequently proceeds to discuss valency in the light of modern work. A perusal of the book brings before the reader a delightful view of how in many instances matter is constituted, and we recommend the small book cordially to all who want to take an all-round and philosophical view of chemistry.

THE SIXTEENTH INTERNATIONAL MEDICAL CONGRESS, BUDAPEST, AUGUST 29TH TO SEPT. 4TH.

(FROM A SPECIAL CORRESPONDENT.)

Application of Laboratory Work to Clinical Medicine: A Summary.

ONE of the most striking features of the International Congress of Medicine at Budapest has been the attention paid to the application of laboratory work to clinical medicine. An interesting summary of the various tests which are of use at the bedside was given by Kraus of Berlin, with special reference to sero-diagnosis. The application of the various immunisation processes to diagnosis depends upon the fact that when an organism becomes infected, the organism becomes altered in its behaviour to the infecting agent; this change is in certain cases a specific one. The changes take place in two different ways: (1) as a lessened disposition to the infection in question (immunity *sensu strictiore*); and (2) as an increased disposition to the infection or "hyper-susceptibility."

Now the humoral and cellular processes which characterise the process of immunity as a rule act together, but at any given stage of the disease first one and then the other assumes for the time being the more important rôle. The specific humoral reactions usually occur in the circulating blood, so that the tests which involve examination of the blood serum are generally referred to for short as "sero-diagnosis." Sero-diagnosis depends upon the following hypothetical substances: (1) agglutinins and precipitins, neither of which possess much protective action; (2) complement-fixing substances without bacteriolytic properties—i.e., the antitoxins (antitoxic immunity); (3) complement-fixing substances with bacteriolytic properties (bactericidal immunity); and (4) opsonins and bacteriotropins (cellular immunity). So far the antitoxins have not been shown to have any value as diagnostic agents, and belong properly to therapeutics. It may, however, be possible to apply the presence of anti-staphylolysins, which apparently belong to the antitoxins, to the diagnosis of chronic staphylococcic diseases (Bruck, Michaelis, Schütze).

Biologically, the antiferments are closely related to the antitoxins. According to Brieger, an increase of antiferments is found in the serum of patients suffering from carcinoma and cachexia; but at present this so-called "cachexia reaction" must only be used with great reserve for diagnostic purposes. It may be mentioned that this subject has recently been studied in this country with special reference to tuberculosis, cancer, and cachexia, and has been noted in our columns.[1]

The *agglutination test* is the safest method as regards clinical medicine. It may be said to be extremely specific, and is of great value in the diagnosis of enteric fever, paratyphoid fever, meningitis, cholera, Malta fever, dysentery, and others.

Precipitins, which have assumed a very important position in forensic medicine for the differentiation of albumins (Wassermann, Schütze, Ahlenhut), have been found to be of little use in clinical medicine, in spite of the work of several authors, notably Fornet.[2]

The presence of *complement-fixing substances* is ascertained by (*a*) the bacteriolytic experiment of Pfeiffer; (*b*) the bactericidal method of Neisser and Wechsberg; and (*c*) the complement-fixation method of Bordet and Gengou.

Pfeiffer's method is of use as a control for the agglutination test in cholera, typhoid, and paratyphoid. Clinically it is generally used when the agglutination test is negative or gives only doubtful information. The test is officially recommended in Germany for the investigation of early cases of cholera.

The *Neisser-Wechsberg method* is practically never used in clinical medicine.

The *Bordet-Gengou reaction* appears earlier in typhoid fever than the Widal (agglutination) reaction (Widal and Lesourds), but nowadays the early diagnosis of this disease is

[1] THE LANCET, April 3rd and August 21st, 1909.

[2] See, however, an article by Dr. D. A. Welsh, Dr. H. G. Chapman, and Mr. J. C. Storey on the Application of the Precipitin Reaction in Hydatid Disease, published in THE LANCET, April 17th, 1909, p. 1103.

much better made by cultivation of the typhoid bacilli direct from the blood. (Blood culture made in media of pure oxbile, ammonium oxalate, or glucose agar, 24 hours, transplanted on to Conradi-Drigalski medium, 80 to 92 per cent. positive during first week of disease.) In epidemic cerebro-spinal meningitis, when the meningococcus cannot be recovered an inferential diagnosis may be made by the examination of the cerebro-spinal fluid (Bruck, Citron) or the blood serum (Cohen) for antigen and antibody. In tuberculosis, with the exception of cases treated with tuberculin, antibodies are only found by this method in very few cases (Citron), and in such cases the tuberculin reaction of Koch may be negative.

The most important clinical use of the fixation of complement reaction is in the diagnosis of syphilis[3] and of echinococcal diseases.[4] The biological specificity of the reaction has been doubted in many quarters. From a clinical standpoint the specificity is undoubtedly maintained. It is the most constant sign of active syphilis (Citron). It must, however, be borne in mind that mercurial treatment is an important factor in causing a negative reaction. The Wassermann test can be of value and should be used (*a*) in the diagnosis of primary syphilis (90 per cent.+); (*b*) in the differentiation between inactive and active syphilis; (*c*) in the diagnosis of asymptomatic syphilis; (*d*) in the diagnosis of hereditary syphilis, and, generally speaking, in the investigation of all relatives or offspring of syphilitic subjects—e.g., sterile married women, epileptics, children with weak constitutions, &c.; (*e*) in establishing the etiology of tabes dorsalis, general paralysis of the insane (examination of the cerebro-spinal fluid), diseases of the aorta (mesaortitis, aneurysms, or aortic valvular disease), keratitis, and other similar conditions so often associated with syphilis; and (*f*) in the diagnosis of doubtfully syphilitic obscure cases. Further, the Wassermann test combined with clinical observations can form the basis of a biological control of the method of treatment with mercury for each individual case (Citron). As regards this reaction in cases of echinococcal disease, the best antigen to use is hydatid fluid obtained from the sheep. Human fluid sometimes gives the reaction with normal serums.

Opsonins and bacteriotropins are used for diagnosis by Wright's method, especially in England and America. Only wide variations in the index should be used for diagnosis. Reference may be made to the paper of Inman, who has shown a definite relationship between the opsonic index and the temperature curve, and also the effect of exercise on the opsonic index in pulmonary tuberculosis. This subject has been debated in our columns.[5]

The *non-specific humoral reactions* have only been little studied. They are of a chemical, fermentative nature (alteration of the globulin and lipoid content of the serum, increase in lipases, &c.). It is on such changes that the phenomena which have been wrongly termed "syphilis precipitations" are based. (Reactions of Porges-Meier, Klausner, and Nonne: equal volumes of syphilitic serum and a homogeneous emulsion of lecithin in physiological salt solution are mixed and kept at 37° C. for five hours, and for a day at room temperature. A precipitation of lecithin occurs if the serum is syphilitic.)

The *cellular immunity reactions* only play a small part as diagnostic agents, as they are not sufficiently specific. Their general biological significance is, however, very great. To such belong (1) spontaneous immunity (phagocytosis without the presence of opsonins—e.g., of gonococci); (2) the surrounding of micro-organisms by cells—e.g., tuberculous or actinomycotic nodules, blastomycetes, &c. (naturally one must presuppose the frequent collaboration of opsonins and bacteriotropins in these cases); (3) the appearance of a quantitative increase in quite definite cell elements—e.g., lymphocytes in the cerebro-spinal fluid in cases of tuberculous or syphilitic diseases of the central nervous system, polymorphonuclear pus cells in staphylococcal or streptococcal infections, eosinophiles in helminthiasis; (4) the Guarnieri bodies in small-pox, the Negri bodies in rabies; the bodies known as trachoma and molluscum contagiosum also probably come under this category, inasmuch as they have to do with the products of immunisatory reactions occurring inside the cell against the infecting virus. The diagnostic value of these structures, however, is usually only practicable in the post-mortem room or after operation, the only exception being trachoma.

The "hyper-susceptibility" reactions are analogous to the immunisation reaction both of humoral and cellular type. Their nature is, however, as yet insufficiently explained. Clinically their most important application is as (1) the "tuberculin reactions": (*a*) Koch's subcutaneous injection method, (*b*) von Pirquet's cutaneous reaction, (*c*) Calmette's ophthalmo-reaction, (*d*) Moro's inunction method and the Lignières-Berger method; and (2) similar reactions in cases of typhoid fever (Chantemesse), syphilis (Neisser), diphtheria, &c., reactions which have so far only academic interest, so that their clinical application is as yet hardly possible.

The humoral hyper-susceptibility reactions have lately been used by Yamanouchi, who applied passive anaphylaxis to the diagnosis of tuberculosis. The blood, pleural effusion, ascitic fluid, &c., of suspected individuals is injected into the peritoneal cavity of young rabbits. On the two following days either tuberculin (human, bovine, or avian) or a filtered broth culture of tubercle bacilli is injected intravenously. The rabbits die with all the symptoms of anaphylaxis.

Further experiments on the subject are wanted before anything definite as to its clinical value can be said.

[3] Wassermann's Reaction, see THE LANCET, May 29th, 1909.
[4] Chedini, Weinberg: Comptes Rendus de la Société de Biologie, tome lxv., 1908.
[5] THE LANCET, Jan. 25th and Oct. 31st, 1908.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Budapest, Sept. 18th.

I OUGHT to make a reference, although the occasions have now gone by some time, to certain other hospitable functions given in connexion with the Congress, and notably to the *déjeuner* given by the French section and the luncheon given by the Americans.

The French Déjeuner.

The French *déjeuner* was given on Thursday, Sept. 2nd, Professor LANDOUZY presiding. Among many ladies present were the Vicomtesse de Fontenay, wife of the French Consul-General, and Madame Coralli, wife of Professor Coralli.

Professor LANDOUZY, in his brief address to his guests, turned to Professor Kalman Müller, President of the Congress, and alluded to his recent illness. He drank to the President of the Congress, saying: "On Sunday morning tears were in our hearts. You do not know what a good friend he is. We lost his speech, but in our executive committee we will propose that it shall be printed in the annals of the Congress. You have made the success of the Congress solid; your successor may do as well, but he cannot do better." Professor Landouzy then alluded to the eloquent addresses which they had heard from Count Apponyi in the French language, and concluded by a graceful allusion to the influence of women in the success of the Congress. "It is easy to see," he said, "why ladies came to Budapest and why the French is the largest section of the Congress. It was because Madame de Fontenay went to Paris and told her friends all about Hungary. After hearing her all the French ladies wanted to come, and in France we do all our ladies desire." He also made a special allusion to Dr. Raoul Blondel, who for three years had acted as secretary of the French section despite the accumulation of worries which this implied, adding that in all this work Madame Blondel took an active part and deserved the gratitude of all French members of the Congress.

Count APPONYI responded, saying he felt deep emotion at having to speak after so eloquent and distinguished a doctor and psychologist as his host, whose great heart was only equalled by his great eloquence. Count Apponyi related that he had just returned from a visit to France and was happy to again find all the charm of the French nation on a little spot within the Hungarian territory. This was the consulate of France and the home of Madame de Fontenay. "Such words are not empty compliments," he said. "The Hungarian situation, in the scheme of nations, is very different to that of France. It is a small country in numbers. Our civilisation has need of the support of greater and older nations just as we had need of protection in the past. We are willing to be disciples, but not slaves or mere imitators. We must open all our doors

and windows to let in the intellectual currents, accepting all that is good while retaining our individuality. It is my mission to cultivate such relations as no geography can separate." That is why he saluted with joy the meeting of this great Congress. It was not for him to appreciate its scientific services. He had been told that the scientific level was very high and that Hungarian institutions had been admired. "Remember, however, that what you see here is but half a century old, while you have centuries and centuries behind you. It is my mission to welcome intercourse with a science I have still further learnt to appreciate. We can now quote the judgment of those who know against those who do not know. We will not forget your presence here and only ask you to remember this country where you are loved and esteemed and which wants to be appreciated. Long live French medical science. Long live France."

Needless to say, this speech elicited enthusiastic applause. The Vicomte DE FONTENAY in a brief speech congratulated those who had followed his advice in attending the Congress. The way the French had been received at the opening ceremony had awakened patriotic emotions. He was sure his fellow-countrymen, having once experienced Hungarian hospitality, were glad they had come, while they would have discovered that what comes from France enjoys a special prestige in Hungary, a nation now entering upon a course of national development deserving of encouragement.

The American Luncheon.

This luncheon was given on the following day, Sept. 3rd, at the Hotel Hungaria. Professor Dr. JOHN H. MUSSER, who acted throughout the Congress as chief of the American contingent, issued the invitations. In a brief speech he alluded to the unveiling of the monument to Washington which had just been erected at Budapest, protested the admiration of the Americans for the patriotism of the Hungarians, and promised as a medical man that he would see to it that the fellow-countrymen of His Excellency Count Apponyi (who was a guest) would be looked after when they came to the United States, as medical practitioners had special opportunities for exercising such surveillance. They in the meanwhile felt somewhat abashed when they recalled that the conditions under which Hungarians lived in the United States were not what they should be. His Excellency could trust them to do whatever was within the power of the medical profession to improve the lot of the Hungarians in the United States.

Count APPONYI, having spoken on the previous day in French, now proceeded to express himself fluently in the English language. "If," he said, "words could enable me to fully open my heart I would not fear the committal of any blunder. Hungarians appreciated the good points in all foreign countries and strove to assimilate them. I shall not say we have a peculiar, but we have a large feeling of sympathy with you Americans, as we have with the great German nation and the no less great French and Italian nations. The excellency of the human race does not reside in one compact mass, but in various branches, each with its special virtues and admirable characteristics. These peculiar national qualities we one and all must preserve the better to serve humanity at large. In economics we have to be national, but in science we can be absolutely international. Here we do not differ, here we can all meet." He would quote the Greek method of greeting as most appropriate to such a gathering, "Be of good cheer." The science of medicine was the science of life utilised to prolong health and joy. Therefore they might well speak of being of good cheer, particularly as their only pursuit was the discovery of truth. "Only the man of science can be perfectly honest. He had not to take into account his own or other people's weakness. I congratulate you because in this you are better off than I am, for you have no question of policy to observe. I hope you will remember us as kindly as we shall remember you."

Dr. MUSSER remarked, when the applause had subsided, that the Congress had been a superb social effort which the Americans would strive to imitate but which they could not hope to surpass.

Dr. THAYER (Baltimore) returned thanks for the ladies.

Dr. F. W. PAVY said that they were all bound to recognise that America formed a magnificent soil for the development of character. With the sentiments which had just been expressed by Count Apponyi all were bound to agree.

Another Attempted Boycott.

In regard to Count Apponyi's speech it seemed to me as if he was not speaking so much to his American hosts as in answer to a hostile demonstration made against him personally on the previous day. A circular issued by the Society for the Maintenance of the German Nationality in Hungary had been sent to all the Germans attending the Congress. This circular was worded rudely and accused Count Apponyi of striving, as a member of the Government, practically to exclude the use of the German language in the elementary schools of Hungary. It, therefore, called upon the Germans present to show their "sense of national honour" by refusing "as one man" invitations given by Count Apponyi. At the dinner, which took place on the evening preceding the American luncheon, a considerable number of Germans who had accepted failed to attend, and of course it was supposed that they were influenced by this circular. Naturally these facts leaked out and the political press has not failed to make use of them. The language question in Hungary represents a very acute difficulty, and was the cause of the Roumanian boycott of the Congress. The Hungarians claim that they are more liberal in respect to the use of other languages than any other nation; but in no other State is there so large a foreign element, that is, if Hungary is to mean the Hungarian race. This latter race, according to their own census, only constitutes 51·4 per cent. of the population of the kingdom of Hungary. Therefore, it is urged that it would be better to follow the Swiss example and not attempt to unify the language of such different races and peoples as the Roumanians, Germans, Slovacs, Ruthenians, Serbs, and others. But in any case, and whatever may be the rights or wrongs of this language question, the fact that the Germans should complain forcibly reminds me of the proverbial pot which called the kettle black. The whole world has read how the Polish children are treated in the schools in that part of Poland which was annexed by Prussia. What the Germans of Austria did ultimately I do not know, but the Germans of Germany evidently thought better of the affair as they came in numbers and in full uniform to the reception given by the Count and Countess Apponyi in the name of the Hungarian Government at the Park Club. This reception I have already described as probably the most brilliant and successful of the whole Congress. It is a serious matter, however, to find that medical congresses, which should be entirely neutral, are not infrequently made the battle-ground of some political or racial dispute.

Rival Champagne and Rival Races.

Altogether innocent and far more amusing was the race contrast shown by the two leading champagne makers of Hungary. Years ago a French artisan from the Champagne, M. Louis François, went to Hungary. It at once occurred to him that some of the white wines of Hungary might easily be converted into champagne, but sparkling wines were little known in Hungary and taste for them had to be created. Having persuaded a few persons to help him, M. François started on a small scale and in course of time developed a very large business. He is able to place on the market a very drinkable wine, which he does not call champagne, for 4*s.* a bottle. It is like champagne and much better than some champagnes sold at a higher price. But M. François's success has brought into existence other manufacturers of sparkling wines. Messrs. Joseph Törley and Co. are the principal rival firm, and the members of the Congress were invited to visit both establishments. It was in the receptions accorded that we obtained the amusing glimpse of race contrasts. With Messrs. Törley and Co. the German spirit of discipline prevailed. Each person had to have his card of invitation in perfect order, then there were wooden barriers to keep him in order and to force him to go over the entire premises, not to miss a barrel or a bottle. Business before pleasure! A heavily laden buffet, lavish supplies of champagne were all forthcoming, everything that the fatigued sightseer might desire was given him with bounteous hospitality, but he had got to do the sightseeing first, and learn all about the process of converting ordinary wine into sparkling wine. It was very solemn and serious. What a difference at Francois's, for in ten minutes everybody felt that François was an old friend and called him François *tout court*. Barriers, discipline, cards of invitation, the solemn investigation of technical processes: why, there was the Zigane band playing the *Marseillaise*, and Spaniards

and French and Italians cheering and Americans looking in wonderment and finally joining in the fun as heartily as anyone else. It was a gust of freedom bursting through all the pomp and pride of officialdom. The Consul-General of France was no longer a diplomatic agent but "hail fellow well met" with all. We thoroughly enjoyed ourselves and came away with the absolute conviction that François's wine was admirable, and staunchly refused to be troubled by scientific arguments one way or the other.

Visits and Excursions: the Splitting Up of Congresses.

Visits were also paid to the "Apenta" works, where the process of raising the bitter waters was shown, together with the ingenious machinery employed. In making wooden boxes the nails are driven in by an American machine. Then straw envelopes for placing round the bottles so as to prevent their breaking are also made by machinery. This is an English machine. A German machine pastes the labels on and the machine for putting on the capsules is home-made. We were especially shown the scrupulous cleanliness that prevails throughout and how the water does not come into contact with the hands of the workers. Nevertheless, medical surveillance is exercised over the employees so that there shall be only healthy persons on the premises. After all these things had been shown and explained there was a buffet with more Hungarian sparkling wines and various delicacies. During three or four days parties consisting of several hundred members of the Congress went to see these wells.

Visits were made also to the military hospitals, the barracks, and the municipal abattoirs. In regard to this subject, I went to see the abattoirs after the Congress was over and will deal with them separately. There were also visits made to the refrigerating depôt of the Hungarian Food Transport Company, Limited. But all such excursions had to be undertaken at the sacrifice of the afternoon meetings of the sections. This was unfortunate for the sections, as it obviously reduced the attendance; but it was fortunate for the excursions. Excursions consisting of 200 or 300 persons are easy to manage, and very pleasant to those who take part in them.

Thus it works out in practice that these large congresses must be split up, some going one way, others in the opposite direction, and no one is able to see all or do all that is inscribed on the programme. But if that is so, if we are to separate almost as soon as we have come together, is this not further evidence that these congresses have become far too large? May this not ultimately lead to separations being effected before instead of after the meeting of the Congress? The tendency has been in the opposite direction up to this date. Thus, for instance, demography had its separate congresses, then it amalgamated with hygiene, so that we have now the International Congresses of Hygiene and Demography, and, like those of medicine, they have become too cumbersome, too numerously attended. At Madrid the Medical Congress comprised also the Dental Congress, which, by the way, was far the better managed of the two. This year the dentists, to the number of 1600, met separately at Berlin. What should we have done if, though already overcrowded, these 1600 dentists had also come to Budapest? But the otologists did come to Budapest and held their Congress as a section of the general Medical Congress. Now they are going off again separately and will hold their next Congress quite by themselves at Boston in the United States of America. Such congresses, on just one special subject, have not only the advantage of being less crowded, but being considered of less general importance, are not, like the great congresses, so likely to be disturbed by outside political influences and intrigues. This latter point was brought home very forcibly at Budapest, where the atmosphere was heavily charged with political considerations that should have been absolutely excluded from these great scientific assemblies.

An Interesting Exhibition.

An exhibition of drugs, chemicals, medical and pharmaceutical appliances, arranged at the Zander Institute by Messrs. Burroughs, Wellcome, and Co., attracted considerable attention. The exhibit included a selection of "tabloid" and "soloid" products of special interest to medical practitioners and other scientific workers. "Tabloid" first aid equipments, "tabloid" photographic chemicals, and specimens of all the newer preparations of the firm were on view.

THE SECTIONS.

SECTION XXI.—TROPICAL DISEASES AND MARITIME MEDICINE.

Dr. EMIL TAUFFER, port sanitary officer of Fiume, read a paper entitled,

"*Sanitäre Institutionen im Ungarischen Auswanderverkehr*" (*Sanitary Institutions in the Hungarian Emigration Traffic*),

of which the following is a summary. The emigration traffic from Hungary was first regulated by the Act of 1904. The institution of sanitary measures had as first consequence the establishment of a direct traffic between Fiume and New York, arranged by the Cunard Line. The next task to be solved was to procure quarters for emigrants in Fiume. An emigrants' hall, capable of housing 2400 persons, has been built by the State. The sanitary police control of the emigrants was the third point of the paper. The control is arranged after the law governing American immigration. From Fiume 3 to 10 per cent. of the intending emigrants are sent back in the country. Only about half of them are sent back for sanitary reasons. Greatest importance is given to the state of the eyes. An average taken of five years shows that of 180,954 intending emigrants 927 were refused on account of florid trachoma—i.e., 5·1 per 1000. Others with diseases of the conjunctiva allied to trachoma—i.e., scars of the conjunctiva and so-called conjunctivitis follicularis—raise the average threefold. The character of these illnesses seems to be relatively mild in Hungary. Others have thought that trachoma in home-coming emigrants is more severe and obstinate. From a general control of Hungarian home-bound emigrants on ten steamers from America 44 cases of florid trachoma were seen in 2377 Hungarian passengers, the illness having been acquired in America. This would show 18·5 per 1000 of trachoma infection in the United States. Dr. Tauffer therefore proposed that the Congress should formulate a *vœu* in support of general sanitary control of all third-class passengers returning from America. A short account of the sanitary service on board of emigration ships and proposals for the remedy of some deficiencies followed. In conclusion, the introduction of State ship's doctors on all emigrant steamers was strongly urged.

A brief discussion followed, in which Dr. FOSSATARO (Venice) and Professor LAVERAN took part, and the following was put to the meeting and carried practically unanimously:—

That the Congress expresses the *vœu* that all Governments will organise proper medical supervision of emigrants leaving or returning to Europe, as such emigrants live generally under bad hygienic conditions, and therefore constitute an incontestable danger for the diffusion of infectious diseases.

At the same meeting another *vœu* was proposed by Dr. DEBAYLE (Nicaragua) (whose paper on Intestinal Parasites in the Tropics had been read at a previous meeting)* to the effect that it is most desirable, in view of the wide prevalence of intestinal parasites in warm climates, that regular and systematic examination of the excreta for their presence should be carried out by practitioners in those regions. This also was carried almost unanimously.

This meeting was mainly occupied in a discussion on the

Sanitary Defence of the Hedjaz Railway.

Dr. KALLER (Constantinople), in opening the discussion, dwelt on the necessity of measures to prevent the spread of disease by the new railway, which had shortened the journey from Mecca and Medina to Damascus, and so had greatly increased the sanitary danger. The first essential was to prevent disease entering the Hedjaz. The Abu-Saad lazaret, near Jeddah, was inadequate, and he urged that pilgrims from the north should undergo their quarantine either at El Tor or at Camaran. Then the town of Jeddah required to be put into a sanitary state; its present condition was deplorable, it was liable to infect the pilgrims rather than the pilgrims infecting it. Turning to the new railway, he criticised the choice of Tebuk for the pilgrims' lazaret; it was 600 kilometres north of Medina, and therefore the whole region between the two might become contaminated. Desert routes left the line, to Teyma, to the Nejd, and to Mesopotamia, at points between Medina and Tebuk, and these

* THE LANCET, Sept. 11th, 1909, p. 811.

constituted a danger. Moreover, pilgrims might leave the train before arriving at Tebuk, and passing by desert tracks, join the line again further north, so escaping quarantine. Akabah constituted another danger, as pilgrims from Jeddah and Yanbo could land there and enter Syria without going near Tebuk.

Dr. KOBLER (Serajevo) supported these views. He raised the question of the authority competent to apply the measures urged, and formulated the following *vœu*:—

This Congress calls the attention of the Powers to the new danger for the spread of plague and cholera caused by the opening of the Hedjaz Railway. As this line did not exist when the last International Sanitary Conference met in Paris in 1903, and as consequently the regulations for the returning pilgrimage only apply to pilgrims travelling by sea, this Congress expresses the wish ("*emet le vœu*") that this question be submitted as soon as possible to a competent assembly ("*une assemblée compétente*").

Dr. F. G. CLEMOW (Constantinople) stated that three and a half years ago he visited the Red Sea lazarets as member of a commission sent by the Constantinople Board of Health. As "rapporteur" of that commission he had called attention to the inadequacy of the Abu-Saad lazaret, and had pointed out that this institution could only be enlarged (as it is built on three islands) by constructing an annexe on the mainland. The other alternatives were to send the pilgrims from the north to Tor or repulse them to Camaran. The latter was inadmissible, as it would mean a six days' extra voyage to the ships, and the pilgrims would probably prevent this by force. As regards the sanitation of Jeddah, he had spent three weeks in that town at the height of the pilgrimage, and in the report above referred to had urged the necessity of radical sanitary measures; particularly the construction of two large hospitals (for ordinary and for infectious diseases), the improvement of the water-supply, &c. The execution of these measures was outside the competence of the Constantinople Board, and if that board took on itself the sanitation of Jeddah it could only be after a new *entente* had been arrived at between the Porte and the Powers. In any case it could only be *à titre exceptionnel* owing to the special conditions of Jeddah, and it was inadmissible that the Board could undertake the sanitation of all the towns of the Turkish Empire, many of which were in quite as bad a state as Jeddah. As regards the Hedjaz railway the question of competency again arose. The Constantinople Board was entrusted solely with the external defence of the country. This new line was purely internal. Its defence was, for obvious reasons, not provided for in the existing sanitary conventions between the Porte and the Powers. Nevertheless, the Constantinople Board had taken on itself to provide for that defence. In 1908 it established a temporary lazaret at Medaini-Salih; in 1909 at Tebuk. In the interval it had despatched a special commission down the line, of which he had been a member. After a most careful study they had selected Tebuk as the site for the permanent lazaret. He was convinced that it was the most suitable site for every reason. Those reasons had been set forth in the report of the commission, and in a series of articles that he had contributed to THE LANCET in the autumn of last year.[7] A summary of those articles appeared in the first number of the *Bulletin de l'Office Internationale d'Hygiène Publique*, issued in January last. At Tebuk there was unlimited space; the water-supply was abundant and good; there was a quarry of good stone, suitable for building purposes; briefly, Tebuk offered more advantages and fewer disadvantages than any other site. The objections raised to its choice as a site were easily answered. Though rather far north, it was essential to establish the lazaret outside the region to which cholera was always carried, by Bedouin and others, when it appeared in Medina. It was never carried very far, 200 or 300 kilometres at the outside, and then died out in the desert. If the lazaret were built in this zone there would be danger of the pilgrims becoming reinfected after they left the lazaret. As regards the danger of the desert routes to Teyma, the Nejd, &c., these had never served to spread disease to Europe, and there was no reason why they should prove of greater danger in the future than in the past. Disease died out, sooner or later, on these desert paths, from natural causes (heat, drought, &c.). Akabah might prove a certain danger, but hitherto only a small number of pilgrims had landed there, mostly residents in the Sinai peninsula, and disease had not been spread to Europe by this route. Nevertheless, the Constantinople Board was considering the question of the defence of Akabah. The danger that pilgrims would leave the train before Tebuk and rejoin it further north would be the same wherever the lazaret was built; he doubted if the danger existed, and it could in any case be met with the greatest ease by very simple measures of sanitary police. In conclusion, he supported the *vœu* proposed by Dr. Kobler; it was essential to regulate this question once and for all. This could not be done without a fresh *entente* between the Porte and the Powers, and he hoped that when that was brought about it would decide not only on the measures to be taken but also on the question of ways and means, and, above all, would determine the authority entrusted with the execution of the measures.

Dr. M. A. RUFFER (Alexandria) said that previous speakers had omitted to mention another important danger to the pilgrimage. The number of African pilgrims had enormously increased in recent years. They came from all parts of that continent, and might take as long as three years in completing their pilgrimage, which many did entirely on foot. Too much importance had hitherto been given to cholera and plague; but other diseases, such as dysentery, typhus fever, typhoid fever, relapsing fever, cerebro-spinal meningitis, small-pox, and acute malaria, were equally important. The sanitary state of Jeddah was an important factor, but no less so was that of Yanbo, of Mecca, and of Medina. Complete sanitary reform throughout was necessary. All the wells from Mecca to Medina became readily infected, and required supervision. The Hedjaz was a culture medium for every variety of microbe. Hospitals were needed in all the centres of the province. When the line from Medina to Mecca was complete and another from Mecca to Jeddah, still larger numbers of pilgrims would choose this route; but a good lazaret at the Jeddah end and another on the line between Medina and Damascus (as at Tebuk, for instance) should suffice for all practical purposes. He did not share the opinion that cholera died out in the desert. It spread far, from well to well. When he was at Akabah he found that the Arabs still recalled the deadly epidemic which ravaged that neighbourhood some years ago. It had spread across the Sinai peninsula and caused great mortality. The desert was no certain barrier to the spread of diseases. Every year there was a tragic mortality in the Haj, which it was their duty, in the name of medical science and of humanity, to endeavour to diminish.

Others who took part in the discussion were Professor GRUBER (Munich), Dr. BELLELI (Port Said), and Professor LAVERAN (Paris). At the close the *vœu* above quoted was put to the meeting and was carried practically unanimously.

[7] See THE LANCET, vol. i., 1908, p. 1789; vol. ii., pp. 971, 1104, 1248.

FOREIGN UNIVERSITY INTELLIGENCE.

Baltimore (*Johns Hopkins University*): Dr. C. D. Snyder has been appointed Assistant Professor of Physiology.—*Berlin*: Dr. Alfred Dönitz has been recognised as *privat-docent* of Surgery.—*Bucharest*: Dr. Stanculéanu has been appointed Professor of Ophthalmology in succession to Dr. Manolescu, resigned.—*Chicago* (*Northwestern Medical School*): Dr. Isaac A. Abt, of the Rush Medical College, has been appointed Professor of Pædiatry.—*Cologne* (*Academy for Practical Medicine*): Dr. Preysing has been appointed Professor of Laryngology and Otology.—*Freiburg*: Dr. J. Herrenknecht, *privat-docent* of Odontology, has been promoted to an Extraordinary Professorship.—*Greifswald*: Dr. Anton Steyrer of Berlin has been appointed Professor of Clinical Medicine in succession to Dr. Minkowski.—*Harvard*: Dr. Charles A. Porter has been appointed Assistant Professor of Surgery.—*New Orleans* (*Tulane University*): Dr. Irving Hardesty of California University has been appointed Professor of Anatomy.—*New York* (*University and Bellevue Hospital Medical College*): Dr. William B. Trimble has been appointed Lecturer on Dermatology.—*New York* (*College of Physicians and Surgeons*): Dr. Evan M. Evans has been appointed Extraordinary Professor of Medicine, and Dr. Hugh A. Steward Assistant Professor of Pathological Anatomy.—*Philadelphia* (*Jefferson Medical College*): Dr. Albert P. Brubaker has been appointed Professor of Physiology.—*Toronto*: Dr. J. B. Leathes, of London, England, has been appointed Professor of Medical Chemistry.—*Washington* (*Georgetown University School of Medicine*): Dr. J. R. Wellington has been appointed Professor of Surgery.—*Würzburg*: Dr. Hotz has been recognised as *privat-docent* of Surgery.

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Post-Graduate Study.

IT is a truism of medicine that even the oldest and wisest of its practitioners remain always students, and the man who ceases so to regard himself, whatever be his tale of years, can hardly longer lay claim to wisdom. But in the past the great majority of medical men who have left the shelter of their hospitals have had to rely on themselves as their own teachers, and good as the school of experience may be none can deny that much can be learnt, and that more easily, from formal and coördinated teaching by acknowledged masters of the many branches of medical practice, assisted by all the clinical and scientific facilities of a hospital environment. It is strange that although this principle has long been recognised amongst the more diligent of English graduates of medicine, considerably less than 50 years ago they could obtain no such systematic instruction in the British Islands, and had perforce to go abroad to the great cliniques of Paris or Vienna to obtain a broader outlook upon the problems of medicine than they could derive from the schools which had endowed them with its necessary rudiments. Such a custom, indeed, can be traced back for centuries, for not only did our professional forbears travel to Montpellier and Bologna and its famous sister schools of northern Italy to pursue their early medical studies, as HARVEY'S stemma blazoned in the Paduan quadrangle still bears witness, but we know that it was a common practice for the Oxford graduates of medicine in the later middle ages to proceed abroad and enlarge their knowledge in the continental seats of learning. Seeing that the desirability of post-graduate education in medicine was thus early recognised, it is somewhat surprising that we can look no farther back than the closing quarter of the last century for the time when it was first available to British practitioners in their own country. We believe that to Charing Cross Hospital in the early "eighties" belongs the credit of having first made a systematic attempt to supply this need, an achievement which was followed by the establishment of a post-graduate course in Edinburgh in 1886. The latter scheme died out after the third year of its existence, and there were no more facilities for the instruction of graduates in the Edinburgh hospitals until the establishment of the lectures which are now running their third course with conspicuous success in the Scottish capital, attended as they are by men and women of many nations. We cannot find that Irishmen had any such opportunities afforded them until three years ago, when Trinity College founded a post-graduate course, which was shortly afterwards supplemented by a similar scheme on the part of the Royal College of Surgeons in Ireland.

Five years ago the position at most of the provincial medical schools was that, whilst they were willing to give facilities to graduates to attend their classes and cliniques, they did not offer them systematised instruction of an advanced nature. Liverpool, Manchester, and Bristol were amongst the earliest in this field, and had post-graduate classes established by 1905, in which year the Glasgow post-graduate school was founded. This is the school before which Sir THOMAS OLIVER delivered the address which we print on another page. Since then, as our own columns have testified only recently, every provincial school of medicine has recognised the need of providing regular fuel for the scientific ardour which it has kindled in its graduates, so that in most parts of the country medical practitioners are within reasonable reach of a post-graduate class if they have leisure to leave their practices to attend it. The two oldest Universities, although their clinical facilities cannot compare with those of the larger towns, have recognised the importance of the movement and have founded vacation courses for medical men desiring to refresh their knowledge of ophthalmology and of clinical bacteriology or tropical diseases respectively. Returning to the attitude of London towards this form of study, we find that although the city which affords probably the greatest field in the world for clinical work was so late in offering its full educational advantages to qualified men in an attractive manner, yet since the year in which a representative body of teachers at length decided to do so her medical practitioners have never lacked the opportunity of continuous post-graduate instruction, whilst in at least one instance the teaching of a master who has enunciated a great new principle in medicine has gathered round him at a London school a band of disciples, both British and foreign, whose enthusiasm for their teacher and his methods is worthy of the greatest traditions of the continental cliniques. It is not yet everybody, however, who has time or inclination to master the *rationale* and practice of therapeutic inoculation, and certainly no such development of medicine was more than dreamt of when in 1889, the year to which we have alluded, certain of the London hospitals, having no medical schools attached to them, announced a conjoint scheme for a complete course of post-graduate instruction in all the branches of medicine, a scheme which did excellent work for nine years. Then in 1898 the Medical Graduates' College and Polyclinic was founded, largely owing to the energy and liberality of Sir JONATHAN HUTCHINSON, who presented the contents of his museum to the new college. The immediate result was that the London Post-Graduate Course passed a self-denying ordinance and dissolved itself on the grounds that it had learnt with pleasure that another scheme for post-graduate work had been organised and that most of those who had taken an interest in the old scheme were taking an active part in the new one. The original idea to include a new hospital in the new scheme, a proposal with which we were never in accord, did not materialise, but, as is generally known, the Medical Graduates' College has done sound and useful work by means of lectures, demonstrations, and consultations in the ten years of its existence, its success having been largely due to the abilities of Captain HAYWARD

PINCH, its late director. But the Polyclinic has hardly filled the place of the old Post-Gradnate Course. That office has been reserved for another body, also founded in 1898—namely, the London Post-Graduate Association, which has prospered ever since, and is now in a position to offer tickets admitting their holders to the practice of seven general hospitals, to four special hospitals of a world-wide reputation, and to the London School of Tropical Medicine, as well as to the Medical Graduates' College and Polyclinic. Another admirable post-graduate school which is three years older than this association is the college attached to the West London Hospital. The London School of Clinical Medicine attached to the *Dreadnought* Hospital at Greenwich and the North-East London Post-Graduate College at the Prince of Wales's General Hospital are likewise well equipped and staffed to fulfil the modern requirements of post-graduate medical education.

But the importance of such study has of late years been recognised outside the medical profession. Not only do the Naval, Army, and Indian Medical Services now second their officers for hospital study and insist that they should revise their professional knowledge during certain terms of their long leave, but the desirability of systematic post-graduate instruction for all classes of medical practitioners has become a subject of international discussion on the initiative of a group of medical men in Berlin. The immediate result of this discussion was reported by one of our special correspondents at the recent Congress of Medicine at Budapest. Fifteen Governments, after the interchange of communications with Berlin, had named delegates to attend the Congress and discuss the matter, and these gentlemen met under the presidency of Professor WALDEYER, with the result that an International Committee for Medical Post-Graduate Courses was formed, the constitution and statutes of which we have already set forth at length.[1] On the day preceding the creation of this committee Professor R. KUTNER of Berlin, to whom the credit throughout is due in no small measure, had addressed the Congress on post-graduate work, giving an account of the institution established for that purpose in Berlin over which he presides, and maintaining that medical men should look on post-graduate study as a normal part of their life-work, and should be given all reasonable opportunities to obtain it without payment in or near the centres of their abode and at hours convenient to their practice. He considers that this end may best be met by the foundation of institutions exclusively devoted to post-graduate study. Professor KUTNER spoke with the assurance of an enthusiast and we should be the last to throw cold water on his ambitions, but we feel that the most satisfactory way of hastening such an ideal state of things is by hastening slowly, for it would be unfortunate in the extreme if many new institutions were founded and not found to justify their existence. We feel strongly that the great body of general practitioners in the different countries themselves should declare their views as to the practicability of a scheme with the ideals of which we have a large measure of sympathy. In the meantime we rejoice that our own country, after long centuries of indifference, affords such excellent and numerous facilities for the prosecution of post-graduate study as is the case at the present day.

[1] THE LANCET, Sept. 11th, 1909, p. 813.

The Diagnosis of Pulmonary Tuberculosis.

THE accumulated experience of the modern treatment of pulmonary tuberculosis points more and more strongly to the fact that the truly satisfactory results are obtained in the early stages of the disease and when the morbid process is strictly limited in extent. Such being the case, early diagnosis is of the utmost importance. Unfortunately, the ordinary methods of diagnosis—that is to say, physical examination of the chest, together with a careful consideration of the clinical history—frequently only yield doubtful evidence, and for a definite opinion to be arrived at auxiliary methods of diagnosis must be resorted to. When the disease is advanced no difficulty will probably arise in diagnosis, but when the tuberculosis is acute or extensive the prognosis is, of course, much worse than in the incipient stage; and the collaboration of the worker in the laboratory will not be so urgently needed. It is in the earlier cases that the clinician chiefly wants the help of the advanced pathologist. Numerous methods have of late years been introduced to assist the practitioner; some of them have proved of value, others have been more or less discarded. The most trustworthy depend upon the application of laboratory processes or products manufactured from the tubercle bacillus. Much of the technique can only be carried out by skilled observers, and the practitioner himself cannot, having regard to his other multifarious duties and responsibilities, be expected to master the details. To meet his requirement "clinical laboratories" are now abundant and can be readily applied to when assistance is required, and a correct and satisfactory opinion can only be arrived at by collaboration of the practitioner with a colleague who has thus devoted himself mainly to the scientific aspect of medicine. To view disease only *in vitro* will always lead us wrong, but at the same time the practitioner can obtain assistance the value of which it would be difficult to exaggerate from processes which can only be carried out in the laboratory. Before the exact value of such methods can be definitely estimated some time must elapse, but sufficient evidence is now at hand to justify some conclusions.

There is one method which has now become almost a matter of routine, and the worth of which is fully recognised; we refer, of course, to the examination of the sputum for tubercle bacilli. If the result be positive, then it is certain that a tuberculous process is proceeding somewhere in the respiratory tract; the exact locality can then be determined by ordinary physical examination. But this is not the whole story, which is not quite so simple. If the result be negative it by no means follows that tuberculosis is absent, and frequent examinations may be necessary. If the case be one of "closed" pulmonary tuberculosis bacilli will not be detected in the sputum, and yet the disease may be present. Attempts have been made to draw conclusions from the number of bacilli seen, from their appearance, and

from their manner of staining. The opinion generally held is that no trustworthy conclusions can be formed on these data. There are many cases, however, in which no sputum is expectorated, and then more elaborate measures have to be adopted. Most of these depend upon the application of tuberculin. The fear of this preparation, which arose shortly after its introduction by KOCH, has now been to a great extent allayed by the researches of CORNET, VON PIRQUET, BANDELIER, and numerous others, and the view is now generally held that tuberculin, when carefully employed, in proper doses and in a particular manner, is free from harmful effects. The subcutaneous test was first used for diagnostic purposes. We do not propose to describe the technique, but would merely say that there is considerable difference of opinion as to the best dose, but fair uniformity as to its maximum and minimum limits. BANDELIER and KOEPKE recommend commencing with 2-10th milligramme and increasing if necessary to 10 milligrammes for the last dose, KOCH'S old tuberculin being employed. As a rule, with these doses the reaction is slight, but occasionally alarming symptoms manifest themselves, such as a considerable rise of temperature, marked sense of weakness, pains in limbs, and severe headache, and it may be then necessary to keep the patient in bed for several days. Further, the reaction is local and general; the former is the specific feature, and also aids in localising the disease. The general reaction is not specific, since sufficiently large doses are said to produce an effect in normal people. Syphilitic individuals may also respond. BANDELIER and KOEPKE maintain that the subcutaneous method is the most trustworthy diagnostic agent for the detection of early pulmonary tuberculosis in adults. Owing to the possible occurrence of the unpleasant symptoms mentioned above, however, this test is not universally adopted.

Other modifications of the tuberculin test have been introduced and widely investigated—namely, the ophthalmic or conjunctival test of CALMETTE and WOLF-EISNER, and the cutaneous test of VON PIRQUET. The strength of the preparation used in the first-named has been varied by different observers, but the most usual forms are a 1 per cent. solution of dry tuberculin (alcohol precipitate) in sterile water or a solution of KOCH'S old tuberculin in a 0·8 per cent. sterile physiological salt solution. For the technique of the process and a description of the reaction we refer our readers to the numerous accounts which have been published. In the majority of instances the resulting conjunctivitis is mild and soon disappears, but occasionally a severe reaction follows, lasting a considerable period. For this reason many observers hesitate to use the test, although it is asserted that permanent mischief has never been produced if the eye was previously healthy. The value of the conjunctival reaction may be briefly stated thus. The positive result of a single or of a repeated dose proves the presence of a tuberculous focus somewhere in the body of the patient, but the disease may be arrested or active. A negative result proves the absence of tuberculosis when made four times on the same eye with tuberculin of increasing concentration. The diagnostic certainty of the cutaneous reaction of VON PIRQUET is said to be extraordinarily great, but it is generally acknowledged that it has more a negative than a positive value—that is to say, if no reaction occurs the case is probably not a tuberculous one. The presence of latent as well as active tuberculosis, however, brings about a reaction. It is especially of value in children. The percutaneous test, in which tuberculin is simply rubbed into the skin, has not been so much studied, and it is doubtful whether its results are sufficiently trustworthy to have diagnostic value. Auto-inoculation has been made the basis of another diagnostic test by A. C. INMAN. His method consists of taking the opsonic index when the patient is at rest (preferably early in the morning) and again after exercise. If the index exceeds the normal limits the presence of tuberculosis is assumed. This test has so far been found most satisfactory, but sufficient experience is not yet to hand to justify any positive conclusions in regard to it. The same observer also maintains that if the patient is confined to bed great aid to diagnosis may be obtained by comparing the variations of the temperature with that of the opsonic index. If they have an inverse ratio, the existence of tuberculosis is indicated.

With regard to other auxiliary methods of diagnosis, such as examination by the Roentgen rays, the percussion of the apices, according to KRÖNIG, the morphological examination of exudations (cyto-diagnosis), it can only be said that observers are much divided in opinion as to their worth. The trustworthiness, utility, and ultimate safety of the various tests to which we have drawn attention can only be decided by time; but in virtue of the importance of the diagnosis of an early stage of pulmonary tuberculosis future investigations are highly desirable in order to place these tests on a firm and undoubted basis. We venture, in this simple *résumé*, to call the attention of our readers to topics with which they are most of them perfectly familiar, because the sense of the great curability of early phthisis, which has now become common, ought to lead to a more general adoption of the best methods of diagnosis.

The Etiology of Leprosy.

THE Second International Scientific Conference on Leprosy has been held at Bergen this autumn, under the presidency of Dr. ARMAUER HANSEN, the distinguished discoverer of the leprosy bacillus. It is now 12 years since the first international conference on this disease was held at Berlin, and although in the interval no brilliant discoveries in connexion with leprosy have been made, much sound and useful work has been done towards confirming previous observations and experiments and in establishing on a firm and solid basis the opinions held regarding the disease. What these opinions are may be gathered from the address[1] with which Dr. J. M. H. MACLEOD, of the London School of Tropical Medicine, opened the discussion at Bergen, having for its object the present state of our knowledge of the bacteriology and pathological anatomy of leprosy. This address summarised the facts relating to the disease from the scientist's standpoint. The practical side of the question was dealt with in a report which was presented to the conference by the delegates

[1] THE LANCET, August 21st, p. 515.

of the English Government, Dr. ARTHUR NEWSHOLME and Sir MALCOLM MORRIS, entitled "Papers Relating to Leprosy in Certain British Colonies." This report was drawn up from information collected by the Colonial Office, and contained answers to specific questions which were sent out to the Crown colonies and protectorates in the form of a circular despatch. The questions, which had been framed by the Colonial Office with the advice of the Medical Department of the Local Government Board, related chiefly to the number and distribution of lepers in the colony, notification, administrative control, segregation, and the nature of institutions for reception of lepers. A request was also made by the Colonial Office for copies of special reports dealing with the history or management of the disease in the colony or protectorate, and in response a number of very interesting reports were contributed, to some of which we will allude presently. In view of the collection of material from observers in many of our colonies, and in view of the scientific summary presented at the Conference by Dr. MACLEOD, and in view, further, of the resolutions passed at Bergen by the delegates, we are in a position to take stock, as it were, of the present state of the opinions held regarding the etiology of leprosy. It can be asserted without fear of contradiction that Hansen's bacillus is the specific microbe of leprosy. It has, however, been impossible as yet to find a medium in which it can invariably be cultivated outside the human body. The disease is contagious from person to person, but the precise way in which contagion takes place is not yet demonstrated. It is a matter of experience that leprosy is prevalent under conditions of personal and domestic uncleanliness as well as overcrowding, especially where there is close and protracted contact between the sick and the healthy. The possibility of indirect contagion effected by fleas, lice, bugs, and the itch parasite cannot be ignored. In this connexion it is of interest to mention that a writer in the *Annales de l'Institut Pasteur* has recently drawn attention to the fact that demodex is found in the sebaceous follicles of the nose, and that in these same follicles the leprosy bacillus is found. The suggestion, therefore, is that it is by means of demodex, transferred from one face to another, that leprosy may be transmitted. One observer claims to have discovered the specific microbe in the gnat and in the bed bug, but these observations need further confirmation. The question, however, still remains unsolved whether leprosy is transmitted by immediate contact, by transfer of germs directly from the sick to the healthy, or inoculated by a parasite serving as an intermediary host or vehicle of the lepra bacillus.

Some suggestion has been made that as sandflies are found in every country, hot or cold, where leprosy occurs, these insects may have concern in diffusion of the disease, but no evidence of a satisfactory sort has been forthcoming in support of the hypothesis. The view that leprosy is a hereditary disease receives little support at the present time. The food theory, and especially the alleged causation of leprosy by fish, did not find much favour with the delegates at Bergen. Dr. MACLEOD in his address dismissed the theory by saying that "until the leprosy bacillus has been found to exist in decayed fish and to be capable of being recognised there, the fish theory of the etiology of leprosy cannot be regarded as other than a hypothesis unsupported by scientific fact." A remarkable experience on the non-transmission of leprosy by food, in circumstances where everything seemed favourable to that result, is given in one of the contributions to the Colonial Office report already mentioned. At the leper asylum at Hendala, Ceylon, where some 2772 lepers have been treated since 1863, Dr. C. HEYNSBERG says that when he was first appointed he made careful inquiry into the so-called "commensal" mode of contagion. He found the boundary walls of the asylum grounds infested with pauper children from adjacent villages begging daily at each meal for food from the patients. This had been a long-standing custom and was difficult to eradicate; as a matter of fact, the remnant of the leper's food had been up to the present freely distributed to these beggars, especially by the Buddhist patients. Further, the latrine coolies make a practice, when taking their meals, of sitting among the lepers of their acquaintance and exchanging with them their curries and other delicacies. The attendants daily handle the leper patients' soiled linen, or dress the leprous wounds with their bare fingers. When patients are on particularly good terms with the attendants they show their gratitude by sending from time to time some delicacy in the way of food to the attendant's family who live close to the asylum. The attendants go home from their duties to their families after dressing leprous sores, and in their working clothes caress their own children and often feed them with morsels placed in the mouth with the fingers which have not always been made aseptic. It may also be mentioned that the Singhalese and Tamils of the country exchange as a matter of civility or compliment their betel or areca nut which is used for chewing purposes; so that an attendant will sometimes accept the partly chewed mass from the leprous patient's hand and put it in his own mouth. These attendants belong to families which have been in the service of the asylum for several generations; and yet, strange to say, not one of them has as yet contracted the disease; nor has any case of leprosy been known to occur among the families of the attendants or coolies, or among the villagers who receive food from the lepers' hands day by day. There is a considerable consensus of opinion that the infection of leprosy enters the system by way of the nasal passages or upper respiratory tract. The bacillus lepræ is often found in the nasal discharges, and one authority regards the initial lesion as being a specific ulceration of the cartilaginous septum of the nose. The specific microbe has been also found in the saliva and on the surface of the epidermis. Sometimes the manifestations of the disease are found on the genital organs, and leprosy may therefore at times be transmitted by sexual connexion. It is well known that the leprosy bacillus may be found in the vaginal discharges. Recently a French observer in the Loyalty Islands examined ten infected women and found the bacillus of leprosy in the vaginal secretions of four of them. Dr. N. M. MACFARLANE, in a special report to the Colonial Office on leprosy in Basutoland, relates an interesting instance in which a leprous man died leaving a young widow. Shortly after the death the local

chief's brother along with six men took up their residence in the deceased man's hut, where they remained for six months, "sharing the young widow" among them. So far as is known, she had no outward signs of leprosy, and yet not long afterwards all seven men developed the disease.

It is somewhat reassuring to find that the Bergen Conference did not take too gloomy a view of the prognosis of this disease, for they were of opinion that clinical study of leprosy induced the belief that it is not incurable, though at present no certain remedy was known. Search, however, for such a remedy should be continued. Meanwhile it is essential that in countries afflicted by the malady no leper should be permitted to take part in certain trades, and no leprous vagrants should be allowed to roam throughout the country. Compulsory notification and segregation of lepers in settlements or institutions where some sort of home life is possible should be strictly enforced. The healthy children of lepers should be separated at once from their parents and medically examined from time to time, as should also any persons who may have been found living in lepers' houses. For nurses or attendants on advanced leprous cases the practice, advised by American experts, of plugging the nostrils with sterilised cottonwool might be followed with advantage. There can be no doubt that leprosy is disappearing from highly civilised countries, and that, on the other hand, it lingers in lands which are semi-civilised or where cleanliness of person and environment is not cultivated. So that it seems necessary that precautions against the spread of leprosy from person to person should be further supplemented by general measures having for their object the sanitary improvement of the conditions under which the common people live, and their education in habits of scrupulous cleanliness in the widest sense.

Annotations.

"Ne quid nimis."

MALARIA IN INDIA: GOVERNMENT ACTION.

OUR readers are doubtless well aware that for some time past two opposing parties have been striving, occasionally, it has to be admitted, with what appeared to us to be unnecessary acrimony, to induce the Government of India to undertake comprehensive measures for the prevention of the excessive morbidity and mortality arising from malaria. On the one hand, it was urged that this could best be attained by systematic destruction of mosquitoes and the carrying out of works which would abolish the breeding grounds of these insects, attention being at the same time paid to the use of quinine for treating native children and others who acted as carriers of the malarial parasite in their blood. On the other hand, it was strenuously contended that the most practicable means for preventing the sickness and mortality arising from malarial infection was to secure complete prophylaxis of the exposed populations by means of quinine administered systematically. Many members of this party allowed that mosquito destruction and the removal of conditions fostering the multiplication of these insects would also be of service; but declared that enormous sums of money would have to be spent before any perceptible results could be attained, and that in a country like India it would practically be impossible to get such work carried out systematically. Meanwhile, looking to the appalling death-rate attributed to malarial fever, amounting alone to considerably more than a million of deaths per annum, it became necessary that some action should be taken. We therefore learn with great satisfaction that the Sanitary Commissioner with the Government of India has proposed the formation of a permanent organisation to inquire into the problems connected with malaria in India; and the Governor-General in Council has decided to convene a conference of delegates from local governments to examine the whole question and to draw up a plan of campaign for the consideration of the Government of India and the local governments. This conference is to assemble at Simla on Oct. 11th, and each local government will be represented by three delegates, the first of whom will be an administrative officer of experience, the second a medical officer, and the third a native Indian. The subjects for discussion, we are informed, will include consideration of the distribution of malaria in India as a whole and in the various provinces; the measures of prevention which have been adopted in different parts of the country and the amount of success attending them; the improvement of schemes of prevention, including the question of the most suitable form of quinine and the agency by which it can most effectively be distributed. We trust that the results which will follow this conference will be of great and lasting benefit to India and its toiling millions, and that our knowledge of malaria and how it can most speedily and successfully be combated must be considerably advanced.

HEALTH VISITORS.

ONE of the most noteworthy events of recent years in public health administration has been the useful part which women, either as sanitary inspectors or health visitors, have been called upon to take in relation to the circumstances of female employment and the conditions of child life; and it is clear from the annual reports of medical officers of health that year by year the necessity for further development in these directions is being recognised. A considerable impetus has been given to the employment of suitable women in the realm of what should be termed "personal hygiene" by the Notification of Births Act, 1907, but the importance of female inspectors and health visitors has been for several years past fully appreciated by many of our large towns in connexion with the operations of the Factory and Workshops Acts and with systematic efforts towards the reduction of infantile mortality. The excellent reports written by some of these female inspectors have shown the value of their work and the soundness of their judgment. So carefully have many of these women been selected in the past that to some people it may seem superfluous to make regulations for the appointment of health visitors under the provisions of the London County Council (General Powers) Act, 1908. But the Local Government Board, no doubt wisely, has determined to exercise its powers under Section 6 of that Act, and has now issued regulations prescribing the qualifications, mode of appointment, duties, salary, and tenure of office of such visitors, and henceforth, so far as the metropolis is concerned, no appointments can be made except in accordance with these regulations. By Article 1 it is laid down that a woman may qualify herself for appointment as a health visitor in five different ways—i.e., by becoming (*a*) a qualified medical practitioner; (*b*) a trained nurse; (*c*) certified under the Midwives Act, 1902; (*d*) by undergoing a course of instruction in a hospital or infirmary receiving children as well as adults, and by holding, in addition, the certificate of certain bodies such as the Royal Sanitary

Institute; or (*e*) by having held some post under a sanitary authority in England or Wales, where she has discharged duties which, in the opinion of the Local Government Board, are likely to have qualified her for the post of health visitor. But in certain circumstances women who have not complied with any of the foregoing conditions, but who, in the opinion of the central authority, have a "competent knowledge and experience of the theory and practice of nurture, of the care and management of young children, of attendance on women in and immediately after childbirth, and of nursing attendance in cases of sickness or other mental and bodily infirmity," may be appointed under certain conditions. In fact, the State is to a large extent willing to judge each application upon its merits, the final decision in every case being in the hands of the Local Government Board. Before any person can be actually appointed as "health visitor" she must be "selected" for appointment by the local authority, and full details as regards such selection must be at once forwarded to Whitehall. If the Local Government Board approves the selection, the local authority may then make the appointment. It will be seen that by this arrangement no appointment can be made before the "selected" person has been approved, and this seems a better arrangement than to allow the actual appointment to be made by the local authority subject to confirmation by the central authority. An appointment once made may be determined by three months' notice on either side, and it may be determined at any time by the Local Government Board. With respect to the salary of these whole-time officers, the Board suggests a minimum of £100 per annum, and as the Board's approval is required in each instance it is probable that few appointments will be remunerated on a lower scale. Provision is made under the head of "duties" for the clerical work of the health visitors, who must submit their books to the sanitary authority or medical officer of health when required to do so, and, generally, these visitors are under the supervision of the medical officer of health. The regulations should as a whole give satisfaction to all those who desire to see the work concerned develop on sound lines.

SEVERE URINARY SYMPTOMS DUE TO OXYURIS VERMICULARIS.

THE migration of the oxyuris vermicularis from the rectum to the vagina and urethra is well recognised, but urinary symptoms of the severity described in a case reported by Dr. G. Petges and Dr. R. Brandeis in the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of August 29th have been rarely recorded. A servant girl, aged 16 years, came under observation on Feb. 22nd, 1909. She had enjoyed good health until 17 months previously, when she began to suffer from itching and pricking in the urinary meatus, painful micturition, and tenesmus. For 15 months the symptoms had become so severe as to be unbearable. The patient had hardly any rest; she was constantly attacked with intolerable vulvo-vaginal pruritus, dysuria, violent tenesmus, and a sensation of burning at the base of the bladder, urethra, and vulva. At the end of micturition the pain was so severe as to cause her to cry out. Paroxysms occurred at least every hour and sleep was interrupted by them four or five times a night. She consulted several practitioners, but could obtain no relief from various methods of treatment. When she came under observation she was considerably wasted and so miserable that she desired death rather than the continuation of her sufferings. Minute examination failed to show any lesion of the vulva, urethra, or bladder. There was vaginismus, which rendered examination of the vagina and cervix uteri impossible. Macroscopically the urine did not show either blood or pus. Signs of tabes or hysteria were absent, and the hypothesis of a tumour inaccessible to examination was suggested, but the patient refused to consult a surgeon. A microscopic examination of the urine was then made with the idea that it would confirm the diagnosis of tumour by revealing the débris or cells of neoplasm. The urine contained abundance of mucus and leucocytes, numerous epithelial cells from the body and neck of the bladder, and round and ovoid cells from the upper urinary passages, the place of origin of which could not be exactly defined. There were also many elliptical bodies 50 μ long and 25 μ broad, surrounded by a smooth membrane, and containing a coiled-up embryo—clearly the ova of the oxyuris vermicularis. The urine contained 0·106 gramme of albumin to the litre. The conclusion was drawn that the oxyuris vermicularis was the cause of the symptoms. 0·15 gramme of santonin with 0·1 gramme of calomel was given every morning, a soap and water enema was administered at noon, and a suppository of 0·25 gramme of mercurial ointment was introduced, and the vulva was bathed with a thymol lotion in the evening. The nails were carefully brushed several times a day with a solution of thymol and soap. No improvement took place for a fortnight and then for the first time for 17 months the patient found life tolerable. Urotropine and santonin were given on alternate days. After three weeks recovery was complete. Examination of the urine showed a few leucocytes and filaments of mucus and great diminution of the vesical epithelial cells. The ova were only little less numerous than before but they showed an important change; their contents were granular and amorphous without any indication of an embryo. The conclusion was drawn that these ova came from females which had been killed, for ordinary ova are discharged from the worm with the embryo already formed. As a precaution against a relapse mercurial suppositories were continued for five days. The patient regained her former good health and recovery proved permanent.

THE NECROSIS OF THE DWELLING-HOUSE.

THERE is a pathology of stone and mortar as well as of the inmates whom they shelter—a fact of which the Roman ædile in the day now passing is feelingly persuaded. The demolitions which are being carried out in Rome on a colossal scale to make room for the monument to the "Pater Patriæ," King Victor Emmanuel II., and for the new House of Parliament or Chamber of Deputies have revealed a degeneration of material quite in keeping with the moral deterioration or perversion of the miserable tenantry—a "luridezza" (to use the expressive phrase of the Italian architect) only to be dealt with by summary removal of the infected partitions and walls and their replacement by fresh constituents open to the light and the air. For centuries these houses have been saturated with the effete matter emanating from their inmates till the very masonry, by a sort of endosmose, has become charged with *materies morbi* given out again, particularly in winter, when the huddling together that takes the place of fuel for warming raises the temperature to the point at which noxious evaporation is induced. Let any visitor to Rome give a glance at the squalid interiors now thrown open to the sun in the narrow streets running down from the Capitoline and along its lower levels, and he will satisfy himself of the necessity, loudly proclaimed by the hygienic architect and the sanitary engineer, for a clean sweep of their tenements and an equally thorough-going reconstruction of the same on ampler lines and on really healthy conditions. The marvel is that this necessity, now so patent and so urgent, has been so tardily recognised, to the inevitable increase of the sick-list and the death-rate of the city. But "Rome was not built in a day," nor, it would seem, is her rehabilitation to be

wrought out in a decade, and not till the two magnificent edifices—the "Monument" and the "Chamber"—will, on their completion, so accentuate the contrast between the new and the old, between the modern structures and the mediæval rookeries abutting on them, as to quicken the sense of civic shame, may we expect the work of demolition to be carried out and that of reconstruction to be fairly begun. It is certainly something of a reproach to United Italy that her capital should witness the erection of one or more palatial hotels every year, and leave its poorer quarters in the squalor they have inherited from the Middle Ages—to evoke the comments, not always amiable, of the foreign visitor for whose accommodation these hotels are reared and managed. With the substitution of sanitary dwelling-houses for the high-tiered hovels now exposed to view some chance will be given to their tenants of that moral rehabilitation so pointedly indicated. The "tessuti necrotizzati" (necrosed tissues) of the lower strata of Roman life (to use the language of the hygienic reformer) will slough away and give place to sounder, healthier structure under improved conditions of living—the first, if not the most important, of these being the housing of the family, with room enough for the individual as for the whole, securing observance of the decencies, and providing for the comfort, which are the most effective antidote to the attractions of the "osterie" (public-houses), of which in Rome, as elsewhere, there are far more than enough.

INFANT MORTALITY IN BOMBAY.

WE have received from Dr. J. A. Turner, the executive health officer of Bombay, a report on the high infant mortality in that city during the year 1908, together with a summary of his recommendations to his sanitary authority for its reduction. The report, which is systematically arranged and tersely written, conveys precisely the kind of information needed by the Bombay sanitary authority in order to deal effectually with the excessive waste of infant life that still continues to prevail in their midst. Taking into account the imperfect character of the statistical information at his disposal, Dr. Turner's report certainly compares very favourably with the majority of similar reports that have been hitherto published in our own country. At the outset the writer warns his readers that in consequence of the incompleteness of birth registration it is impossible to guarantee the accuracy of the returns of infant mortality in Bombay. As a matter of fact, the births of many of the infants dying below the age of one year have never been registered. Familiar with the methods used by the Registrar-General for the correction of crude death-rates in England Dr. Turner has adapted them, as far as practicable, to the widely different conditions obtaining in his own city. Among the factors affecting the Indian birth-rate he refers particularly to the changing age constitution of the married female population, and especially to that of the native women within the conceptive period of life. He also draws attention to the custom prevailing in Bombay for a pregnant woman to leave the city and to return after confinement, bringing with her a child two or three months old, whose birth has in this way escaped registration. With respect to the crude or uncorrected birth-rate Dr. Turner remarks that whilst in other countries it affords, in conjunction with the death-rate, a ready means of determining the natural increase of the population, this is not the case in India, because the local birth-rate takes no account of the changing age constitution of the living in regard to age and sex or in regard to condition as to marriage. In Dr. Turner's opinion the nearest approach to an accurate estimate of the birth-rate will be attained by including all children of native mothers that are born outside Bombay and brought back to the city after birth. In the year referred to 8636 such children were primarily vaccinated; in addition to these a large number must have escaped vaccination either by postponement for medical reasons or by death. Calculated in this manner, the birth-rate of Bombay is 32·4 per 1000 of the population against 38·4 per 1000 for the whole of India. The infant mortality, corrected thus, appears to be equal to a rate of 286 per 1000 births, or 58 per 1000 more than the average rate for India generally. Although both these rates are excessive their difference is not surprising, seeing that the higher rate is experienced in a large city. At any rate, it is not greater than the difference between urban and rural rates which obtains in many other countries. In an interesting table the death-rates are shown in monthly periods of the first year of life. Out of 20,166 children whose births were registered during the year 3078 died before reaching the age of one month, 2807 died between the ages of one and six months, and 3192 others between the ages of seven and twelve months. The deaths of most of the infants within the first month after birth are stated to be due to "debility," by which term are meant want of vitality, premature birth, wilful neglect, and malpractice by ignorant midwives. Among children aged from one to six months the chief causes of death are respiratory diseases, which give the highest mortality of all, nervous diseases, and diarrhœa; or, in other words, exposure and improper feeding. Among children from seven to 12 months old respiratory diseases are again the chief causes of death. Dr. Turner concludes his report with certain practical suggestions for the reduction of infant mortality, and the improvement of the health and physique of the survivors, as well as for the prevention of mortality among puerperal women, not fewer than 360 of whom died last year from diseases consequent on parturition. Briefly stated, the remedies he suggests are the following: (*a*) the establishment of additional lying-in hospitals and the provision of more nurses for the poor before and after confinement; (*b*) the training and licensing of native women as midwives, and the prohibition of midwifery practice by other than licensed persons; and (*c*) the establishment of municipal depôts where poor women can obtain pure milk at a small cost. In pressing these recommendations on his sanitary authority Dr. Turner assures them that similar measures are already in force in most cities of Europe and America, where the State acknowledges its duty towards the people. At the present time 74 per cent. of the total births are attended by untrained women. There are in Bombay three hospitals for lying-in women, at which 2220 women were delivered last year; two of these hospitals are Government institutions, and the third is a Parsi institution established by Dr. T. B. Nariman. Dr. Turner speaks of the latter as "a splendid example of progressive sanitation which has ameliorated the lot of hundreds of mothers and children."

ACUTE TORSION OF THE SPLEEN.

ELSEWHERE in this issue we publish an account of a case in which the pedicle of a malarious spleen underwent acut torsion. The case was under the care of Dr. Ian Macdonald and Dr. W. A. Mackay of Huelva, whom we congratulate on the fact that complete recovery of the patient followed removal of the spleen and dangerous complications. To the account itself we refer readers for a fuller description of the case, and there they will find a valuable and comprehensive abstract of the chief literature of the subject. The spleen rarely undergoes torsion, chiefly because it is rare for it to have a sufficiently long pedicle. The pedicle of the spleen is formed by the gastrosplenic omentum, and

while this varies in length it is seldom very long. Sometimes the spleen is closely applied to the stomach so that hardly any pedicle exists, but occasionally the pedicle may measure some inches in length, so that the organ can occupy very different positions in the abdomen. Commonly the length of the pedicle is between these extremes, and it is generally just sufficiently long to allow the spleen to be brought forward beyond the margin of the ribs. In some cases a long pedicle may be congenital, while it also seems probable that the pedicle may be lengthened by the abdominal conditions, for the majority of cases occur in women, especially in those who have been pregnant. It will be noticed that in the case we report this week the patient, a paludic, was also a multipara.

CORONERS AND UNCERTIFIED CAUSES OF DEATH.

SEVERAL of the coroners who have recently given evidence before the Departmental Committee appointed to consider the law relating to coroners and to coroners' inquests have expressed the opinion that a large number of unnecessary inquests are held. Mr. Isaac Bradley, coroner for the city of Birmingham, and Mr. John Graham, one of the coroners for the county of Durham, specially claimed credit for having economised city and county rates by reducing the number of inquests; in the exercise of their statutory discretion they appear, in a considerable proportion of the cases reported to them, to have decided, after careful preliminary inquiry, that formal inquests were unnecessary. Mr. Graham, indeed, stated that in 936 cases reported to him during 1907 within his district of the county of Durham he only held 460 inquests, while in the remaining 476 cases he decided that inquests were unnecessary. It is noteworthy, however, with reference to the action of these two coroners, that coincidently with the reduction of inquests held within their respective districts the proportions of uncertified deaths have considerably increased. Mr. Graham, coroner for the Chester ward of the county of Durham, stated in his evidence that he almost invariably inserts the cause of death, ascertained at the preliminary inquiry, on the form notifying that he considers it unnecessary to hold an inquest, and under these circumstances he expressed the opinion that the cause of death should not be registered as uncertified. Under the present conditions of registration law, however, a coroner has no authority to certify the cause of a death unless he holds an inquest, in which case he is bound to certify the finding of the jury. The suggested reduction in the number of inquests without further statutory provision for the due certification of the cause of death, at any rate in all cases reported to the coroner, would undoubtedly have the effect of increasing the proportion of uncertified causes of death, and would thus depreciate the value of the death register, on which the Registrar-General's reports and statistics are based. There is, however, another aspect of the increase of uncertified deaths that would inevitably result from a general decrease of inquests which does not appear to have been yet discussed before the Departmental Committee. The majority of the cases of uncertified causes of death are now in infants or young children, and are due to the fact that no registered medical practitioner had been in attendance during the last illness of the deceased. Coroners who decide that inquests in these cases are unnecessary appear therefore to lose sight of the fact that this course of action fails to check the increase in the neglect of parents to seek medical advice when their infants or young children (now almost invariably insured) become ill. The recent increase of uncertified deaths within the districts served by the coroners for Birmingham and the county of Durham affords conclusive evidence of the undesirability of a decision that inquests in such cases are unnecessary. Except in the case of sudden deaths the absence of a medical certificate of the cause of death implies in most cases neglect to provide medical assistance during the last illness of the deceased, which neglect can only be duly investigated and checked by holding formal inquests on such cases.

ULCERATIVE PNEUMOCOCCIC PHARYNGITIS IN AN INFANT.

ATTENTION has only recently been called to the fact that the pneumococcus is a not uncommon cause of inflammations of the throat. At a meeting of the Société Médicale des Hôpitaux of Paris on July 23rd M. Menetrier and M. R. Mallet pointed out that among the infections of the main respiratory passages of young children capable of producing dyspnœa, and even asphyxia, and simulating diphtheria the pneumococcic are frequent. They are most frequently catarrhal, but may be membranous or suppurative, and very rarely are necrotic or ulcerative, as in the following case. A male infant, aged 13 months, was admitted into the Tenon Hospital on May 2nd, 1909. He had been in good health until the previous evening, when fever and dyspnœa suddenly began. On the next day there was an abundant nasal discharge and the respiration became more and more difficult. On the following day diphtheria was diagnosed and antitoxin was injected. On examination the child was in a state of prostration, the face was asphyxial, and there was an abundant muco-purulent nasal discharge with redness of the nostrils and swollen submaxillary lymphatic glands. Respiration was rapid and accompanied by slight suprasternal retraction. The temperature was 102·2° F. and examination of the lungs was negative. The tonsils and soft palate were red, and the posterior wall of the pharynx was covered with a whitish creamy coating which was easily detached with a swab, revealing a superficially ulcerated and slightly sanguineous surface. Smear preparations made from the exudation showed numerous encapsulated diplococci. Cultures on serum and on agar did not yield colonies of the diphtheria bacillus, but typical cultures of the pneumococcus. Feeding was difficult; liquids produced fits of coughing, which were accompanied by the discharge of thick mucus from the nose and mouth. Lavage of the nose and throat with boiled water was performed, hot baths were given every three hours, and collargol was rubbed into the chest. On the 6th the child was worse; the temperature was 102·5°, the respiration was more difficult, and scattered subcrepitant râles were heard in the lungs. The condition of the throat remained the same, and there was no membrane here or in the nose. On the 8th the temperature rose to 104°, and there was phlyctenular keratitis of the left eye. Ulceration took place at the right nostril and at the left angle of the mouth. The child's condition became progressively worse and death occurred on the 13th. At the necropsy the pharynx was found covered with a purulent greenish-yellow coating under which were ulcers. Some of the ulcers were small, of the size of a lentil, superficial, of irregular form, and separated by intervals of sound mucous membrane. Others, larger and deeper and sinuous, were situated on the lateral and posterior part of the naso-pharynx. At the lower part of the pharynx the lesions were, on the contrary, very small. The epiglottis, the orifice of the larynx, and the aryteno-epiglottic folds showed redness without any ulceration. The lymphatic glands in the neighbourhood of the pharynx were swollen, soft, and injected. The lungs showed irregularly scattered zones of congestion, and at the bases islets of consolidation from the small bronchi of

which exuded on pressure a droplet of pus. Microscopic examination showed that the ulcers of the naso-pharynx extended to the muscular coat, the fibres of which were necrosed. In the ulcers staining revealed a mass of microbes, for the most part pneumococci. Below the necrotic areas were the fibres of the constrictor of the pharynx which were abundantly infiltrated with leucocytes, amidst which were here and there masses of diplococci. The lymphatic glands near the pharynx were also infiltrated and showed masses of diplococci. The depth of the ulceration in this case was remarkable, for pneumococcic lesions are usually superficial. The suddenness of the onset of the disease is characteristic of all pneumococcic lesions. The diagnosis of diphtheria was wrongly made in the presence of the nasal discharge, the respiratory obstruction, and the glandular enlargement. Indeed, only the bacteriological examination enabled the hypothesis of diphtheritic coryza without concomitant angina to be eliminated.

ACCIDENT OR DISEASE?

A CASE recently heard, under the Workmen's Compensation Act, before Judge Rentoul sitting in the City of London Court, is deserving of some notice, as it presents features of considerable interest in the matter of medical evidence It concerned a carpenter who in October, 1907, had been awarded £1 a week compensation from his employer because of an injury to his left arm, which had resulted in loss of power in the hand attributed to an affection of the ulnar nerve. At one of the London hospitals the nerve, which was found to be loose, was fixed in position at the internal condyle. About a year after the accident similar symptoms appeared in the right hand, and it was then discovered that the case was really one of syringomyelia. Acting on medical advice that this disease had nothing to do with the accident, the employer applied for an order to stop the payments on the ground that the workman had never been entitled to anything. One of the assistant physicians at the hospital, under whose care the patient had been, gave evidence in support of the application, whereas the resident medical officer at the same institution maintained that cases of syringomyelia were on record which were undoubtedly of traumatic origin. In view of the fact that these two officers differed completely in their opinion, the judge said that it would be dangerous to interfere with the award in the circumstances. He did not think the evidence was sufficient to satisfy him that the man's present condition was not the result of the accident. In these days when there is so much legislation for industrial compensation we hear of many cases in which a conflict of medical evidence, especially expert medical evidence, occurs. That such cases should arise is, of course, unfortunate, and in some instances even unseemly. But it is an entirely superficial and inadequate view to suppose that they can always be avoided, or to imagine that such conflicts suggest partisanship. There is such a thing as a legitimate difference of opinion; on occasion experts must honestly disagree. This very disagreement indicates plenitude, not poverty, of expert knowledge. To take the case above referred to, we note that the patient was admitted to be suffering from syringomyelia, a disease which is relatively uncommon in this country, compared at least with France or Germany. It is a disease with a highly variable symptomatology, and while the cardinal signs, as the textbooks give them, are readily discoverable in a majority of cases, it is a fact well known to neurologists that syringomyelic cavities unsuspected during life may be discovered post mortem in the spinal cord. It is often held that the disease is essentially a congenital one, but the researches more particularly of continental observers make it clear that cavitation may also be secondary to different pathological processes, among which may be mentioned central gliosis, gliomatosis and other tumour formation, and perhaps even meningitis. Again, hæmorrhage into a pre-existing—though perhaps unrevealed—syringomyelic cavity is a condition familiar to the neurologist, and may well be caused by some traumatic commotio spinalis. That infection from a peripheral wound of traumatic origin may spread to the cord by an ascending neuritis and there produce changes resulting in the appearance of syringomyelic symptoms seems well established. Other theoretical explanations of the apparent development of the disease as a sequel to trauma have also been advanced. Where the pathogeny of a morbid condition is so variable the difficulty of assigning its evolution to the action of any one agent is proportionately increased. In the absence of post-mortem evidence (and perhaps even in the presence of such evidence) a consideration of the above-mentioned facts only accentuates this difficulty, and therefore experts may adopt diametrically opposed opinions as to the causation of syringomyelia with perfect sincerity. These are but opinions, for by the very nature of the case they cannot be proved in a legal sense. We cannot help thinking, however, that where both experts recognise that there may be another opinion of the case than their own, it would be well to admit it in evidence and thus avoid even the appearance of partisanship. In dealing with what are merely probabilities, possibilities ought not to be excluded. There is a wise and appropriate counsel in the pages of "Mark Rutherford." "He who by painful processes has found yes and no alternate for so long that he is not sure which is final, is the last man in the world, if he for the moment is resting in yes, to crucify another who can get no further than no." Unfortunately the exigencies of the law courts and methods of examination dear to the legal mind often render this attitude difficult, and force the medical witness to become dogmatic against his will.

THE EXPERIMENTAL TREATMENT OF TRYPANOSOMIASIS.

WE have received a copy of a progress report made to a committee of the Royal Society by Mr. H. G. Plimmer and Captain W. B. Fry, R.A.M.C., giving the results of the treatment of surra in rats by means of various substances. The first substance dealt with is lithium antimonyl tartrate, of which four doses of four or five minims of a 1 per cent. solution were given subcutaneously, one dose being given every other day. Practically they find that by this method every rat can be cured. The animals lived for various periods up to 249 days, and in no case were trypanosomes found after death in the blood or in the organs. No rat died from the disease and in no case treated was there a recurrence. These results were obtained when treatment was commenced on the third or fourth day after inoculation, but if it were postponed until the fifth or sixth day of the disease, when the blood is swarming with trypanosomes, although they may be driven out of the blood, treatment does not cure. Treatment with lithium antimonyl tartrate before inoculation with surra gave no protection to the rats, which all died just as untreated rats would have done. Experiments with sodium antimony lactate and antimony sodium calcium lactate proved that these salts take a longer time to act as compared with the sodium or lithium antimonyl tartrates, which drive all the trypanosomes from the peripheral blood in about an hour after the dose, whereas the former substances take three and a half hours. Experiments were also made with the metal antimony suspended in a state of very fine division in various oily media. Rats treated with one dose of five minims of a 5 per cent. suspension in olive oil

lived from 41 to 133 days. There were no recurrences and trypanosomes were not found after death. It was found in other experiments that this substance took two and a half hours to drive out all trypanosomes from the blood. This oil was also given to several rats for recurrences after treatment by several doses of the lactates mentioned above, but with much less marked effects, which accords with the general experience of Mr. Plimmer and Captain Fry that recurrences are more difficult to treat than the initial infection. A suspension of the antimony in yelk of egg appeared to act better in rats than in any other form, but in dogs the results were variable. Experiments with quassia gave entirely negative results. In regard to arsenophenylglycin, with which Professor Ehrlich was able to cure nagana mice in practically every case, they find that with rats the results are not so satisfactory. They have found a similar variability in regard to the effects upon different animals with other drugs—e.g., with the antimony tartrates—with which they can cure surra in rats, but which have much less effect upon rabbits, guinea-pigs, and dogs. In regard to the effect of these various drugs upon the trypanosomes in the living body, the first change noticed is usually a great increase in the motility of the trypanosomes followed by a gradual slowing-down to less than normal. At this stage the organism tends to swell, and this process continues until it becomes almost spherical, or more frequently "battledore" in shape. The protoplasm becomes indistinct, the macronucleus eventually breaks up, and the swollen mass disintegrates. The action of the various trypanocidal substances upon trypanosomes *in vitro* was also investigated, and from these experiments useful estimates of their probable actions when given to an affected animal were formed. The report is an interesting and useful record of laborious work directed to finding effective treatment for the various forms of disease due to trypanosomes.

"ACUTE TREMOR" IN CHILDREN.

THE disease known as encephalitis, a more or less acute inflammation, presumably of toxic origin, of the grey matter of the brain in one or other of its many regions, is by no means uncommon, especially among children. The familiar "infantile paralysis," or acute inflammation of the anterior horns of grey matter of the spinal cord, is recognised to-day to be a disease of infective origin, with a seasonal variation of incidence, occurring not infrequently in epidemics, and in all probability attributable to a definite pathogenic organism possibly entering the body by the respiratory tract. There is evidence to show that the same or an allied morbific agent may attack the grey matter of the central nervous system at higher levels, and certain clinical types have been clearly differentiated according to the area affected. If the nuclei of the cranial nerves are singled out, we have the condition described by Wernicke as polioencephalitis superior or inferior, as the case may be, though doubtless other agents than the one here considered may produce the same symptoms. Encephalitis cerebelli, a pathological condition of much interest, is responsible for certain cases of acute ataxia, more particularly among children. The clinical history of these cases is very similar to that of many cases of poliomyelitis. In a recent number of *Brain*, Dr. Reginald H. Miller, of Paddington Green Children's Hospital, has reported six instances that have come under his own notice of acute tremor developing in children as the result of an illness which closely resembles, in its clinical features, poliomyelitis anterior acuta. The child who is attacked by the latter disease is often strong and fat, and this rule held good in Dr. Miller's cases. They were all children between the ages of 18 months and five and a half years, who fell ill in summer or autumn. After a varying degree of constitutional disturbance, with or without convulsions and unconsciousness, tremor appeared in the limbs or trunk or head and neck, or all, and was continuously present, except during sleep, in the severer cases, although increased by voluntary movement, while in the slighter cases it showed itself only on voluntary movement or during periods of excitement. Its rate was about five to the second, more or less rhythmical and regular, the appearance of the child being not unlike that of one shivering all over from cold. In addition, a certain amount of hypertonicity of the affected limbs was observed, but the plantar responses were always flexor in type. Dr. Miller considers that the tremor is occasioned by a disturbance in the function of the cerebello-rubro-spinal system. This is a motor system which links the dentate nucleus of the cerebellum *viâ* the superior cerebellar peduncle with the red nucleus of the opposite side, thence crosses again to the spinal cord on the same side, being known in the latter section as Monakow's bundle. It has been shown that the post-hemiplegic tremor so characteristic a feature of the crossed hemiplegia described by Benedikt, and called after him Benedikt's syndrome—ophthalmoplegia on one side and tremor on the opposite side of the body—is probably due to interruption of this system of fibres, and Dr. Miller aptly suggests that the symptoms in his cases, sudden onset of tremor after a brief period of typical malaise, point to an affection in the neighbourhood of the red nuclei of the nature of encephalitis, with consequent impairment of the cerebello-rubro-spinal system in some part of its extent. There is no pathological confirmation of this view at present, for the illness is usually recovered from, and indeed this is true of very many cases of encephalitis, rendering it difficult to adduce data of a pathological nature on which to base the well-recognised clinical types of the disease in question. Until more definite knowledge is available Dr. Miller's symptomatological term of "acute tremor" affords a convenient and useful label for this unusual condition.

THE Home Secretary has signified to the Council of the Royal College of Surgeons of England his approval of the by-laws concerning the admission of women to the examinations for the diplomas of the College, and will sign the formal document which will be submitted to him after the next meeting of the College. Women will accordingly be admitted to sit for the examinations of the College in January.

Sir Richard Douglas Powell, who is abroad, but who will return home at the beginning of October, has given up his house in Wimpole-street. His private and professional address will be henceforth, 11B, Portland-place, London, W.

Dr. E. A. Wilson of Cheltenham, who was the medical officer, geologist, and artist on the *Discovery*, has accepted the post of medical officer for Captain Scott's expedition to the South Pole.

A TELEGRAM from the Governor of Mauritius to the Secretary of State for the Colonies states that nine cases of plague with six deaths were reported during the week ending Sept. 16th.

ROYAL DENTAL HOSPITAL OF LONDON.—The medical staff and lecturers of this hospital have issued invitations to a conversazione and distribution of prizes by Sir Victor Horsley, F.R.C.S. Eng., F.R.S., on Wednesday, Oct. 20th, at 8 for 8.30 P.M., at the Royal Institute Galleries, Princes Hall, Piccadilly, W.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

Motor Tuition.

IN a recent number of THE LANCET I made mention of Motor Schools, Limited, and as some colleagues have since written inquiring about that establishment I availed myself of an invitation from Mr. Turberville Smith, the managing director, to look over the institution and the interesting collection of sectioned models. The premises contain two instruction rooms and a workshop, while there are no fewer than five modern cars for the purpose of giving lessons in driving. Four of these cars are four-cylinder, of 14–20 h.p., and a 20–30 h.p. automobile is provided for advanced pupils. All are so arranged that the instructor, seated beside the student who is driving, also has command, a duplicate control being fitted, which is certainly an admirable precaution against accidents. One of the rooms is used solely as a lecture room, and the time table provides for a different subject on each day of the week, and the course is now extended to cover a fortnight, and embraces the cycle of operations—carburettors, accumulators, coils, wiring, 4- and 6-cylinder engines, synchronised ignition, low and high tension magnetos, water circulation, clutches and gears, live axle and chain drive, the working of the differential, brakes, steering, and lubricators, and the removal and replacement of tyres. The models and other parts are cut open so that a clear view can be obtained of their interior construction, just as "pickles" are shown in an anatomical museum, and as they are mounted very accessibly on benches the student can actually handle, dismount, and re-erect the parts. The working machinery is connected on to a central shaft driven by an electric motor, and thus the mechanism can be followed when actually at work. Another room is used for private lessons, and likewise contains models illustrating the various features of motor construction. At the time of my visit a practical demonstration was being given on magnetos, with the different types at work and attached to sparking plugs, and the scholar was being initiated into the causes of hysteria of the spark plug, neurasthenia of the commutator, myelitis of the armature, locomotor ataxia of the secondary wires, degeneration of accumulators, &c. On a neighbouring bench there was a cylinder, which showed well why insufficient lubrication might cause dry pleurisy and laboured breathing, and also how backward pressure would result if the valves were incompetent, and a sectioned radiator demonstrated how arterio-sclerosis of the radiator would produce feeble circulation of the water. From what I saw it seemed to me that the place was well equipped and that every facility is provided to instruct the would-be motorist. In automobilism, as in medicine, even after passing through a course, the young graduate has still much to learn, but he will, I am sure, be able to understand much more easily the lessons to be obtained by driving and owning a car if he first passes through such a training as the one to be had at Motor Schools, Limited.

Concerning Steam-cars.

Recently there was a letter in THE LANCET asking for steam-car experiences. Steam-cars certainly do not seem to have up to the present attained the popularity of the petrol-propelled automobile, anyway for light cars. With a steam-car cheaper fuel, such as paraffin, may be used, but then more fuel is needed. A steam-car is free from vibration, noise, and smell, and has greater engine flexibility, but it is longer in starting up; with most at least 10 or 15 minutes are required to get steam up, and unless petrol is used the fire is frequently a trouble. The great objection, however, is the attention they need: steam joints are apt to blow and the boilers are an incessant cause for repairs. Most now are fitted with condensing engines, so that the water may be used over again; thus there is but little relatively needed and distilled water can be employed; if ordinary water is used there is a danger that with the rush generated by the steam lime salts may be swept into the engine, and, to put it mildly, lime salts are the reverse of good lubricants. The writer knows of a medical man who is the possessor of a steam as well as a petrol car, and he has noted that the petrol car is out nearly every day, but the steam car only on rare occasions. He also knows of an engineer with large works who once bought a steam car, and got rid of it because it always required "tinkering." For heavy vehicles, such as brewers' drays, where cheap fuel is an important point, and on which coal or coke can be used, the advantage may be in favour of steam, but for light cars, such as the profession need, the balance of opinion is certainly in favour of petrol, not only because less attention is needed but also because no hand-pump is required on starting to force water into the flash boiler, there is no burner to attend to, and no boiler to retain in repair.

Electric Light for Cars.

As Dr. J. B. Emmerson recently pointed out in a letter in THE LANCET, electric lights are especially useful to the medical motorist—merely a switch to push over and the two side and rear lamps are alight. No need now to walk round in the mud and to waste time and temper, perhaps in a gale of wind, to light the oil lamps, no matches, no waiting, but from one's seat all can be switched on. One 4-volt 60 ampère accumulator is enough for the three, and even if a spark accumulator is carried the two can easily be placed in a box on the footboard and the cost of re-charging is nominal. Among many excellent types may be mentioned the productions of Messrs. Vandervell and Co. of Warple Way, Acton Vale, and the Sylverlyte Electric Lamp Company of Poland-street, W. These firms also manufacture head-lights which appear to have unusual powers of penetrating fog, but for ordinary medical work the reflectors fitted to the side lamps throw a powerful light sufficiently ahead to obviate the need of a head-light. The chief peculiarity of the Sylverlyte Company is that their bulb is embedded in the lens, so that the rays of light from the electric bulb are collected and magnified inside the lens and thrown forward through the convex surface. Another advantage of this type of lighting is that little cleaning is needed, and considering the trouble of other methods of lighting they seem as if they will be a boon to motoring doctors.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Sept. 24th, 1831.

SEVERE CASE OF CHOLERA.

To the Editor of THE LANCET.

SIR,—Observing in THE LANCET of the 20th of last month, some interesting remarks on the English cholera, by Mr. Wilson, I beg to state that among a prodigious number of these cases which have lately fallen under my care, there was one, the symptoms of which I think were more distressing than either of those mentioned by Mr. Wilson. The patient, aged 66, was a nurse in St. Giles's workhouse, who, it appears, went to bed perfectly well on the 2nd of this month, and about an hour after was attacked with most distressing vomiting and purging, and with cramps in every part of her body to such a degree, that her arms were drawn up to her shoulders, the fingers completely shut, the feet and toes drawn upwards, and the calves of her legs in large knots, and a prickling sensation was felt all over her body, the face not excepted. The ward she slept in was in a most distant part of the house, and owing to a mistake in locking a door which is usually kept open all night, and the key taken away, she could not obtain my assistance till the morning, when I never witnessed a human countenance so ghastly; her face was almost blue, the cheeks were hollow, the eyes sunken and wide open, with a wild stare, she had cold clammy sweats, and the pulse was almost imperceptible.

In such a deplorable case I confess I was at a loss to know how I could relieve this poor creature; but as there was no time to be lost, I first directed her legs to be put in warm water up to the knees, and well rubbed with warm flannels, and wrapped in flannels made hot. The arms were rubbed with soap liniment, opium, and ammonia, and were also wrapped in flannel. I gave her a mixture of brandy, and full doses of opium and ether every hour, each dose of which her stomach rejected. I then gave an effervescing draught of mint water, opium, and a little brandy every hour, which remained on the stomach, and after taking three doses the vomiting nearly subsided, and she slept for an

hour. I continued these draughts every three hours, and she had some more refreshing sleep. Vomiting now entirely ceased, but the purging went on, for which the chalk mixture, *Kino, pulv. rhœi*, and *tinct. opii*, were given, which reduced the number of motions from four in an hour to one. I continued this all day, giving occasionally a little warm wine and water. In the course of the evening reaction came on, the pulse got up, the skin became warm and moist, and the spasms nearly left her except a trifling prickling sensation in the wrists and insteps; in fact, her face assumed its natural colour, and she considered herself getting well, but was very sore and weak. At length, however, this poor woman, ten days having elapsed, has recovered from a state of suffering not easily to be described, but whether from the assistance she received, or from nature, the medical reader will decide. I remain, Sir, very respectfully, your obedient servant,

J. BURGESS,
House-Apothecary, &c. &c.

St. Giles's Workhouse,
Sept. 12th, 1831.

THE BORSTAL SYSTEM FOR THE TREATMENT OF JUVENILE-ADULT CRIMINALS.

I.

AMONGST the less loudly advertised measures of social reform which are to be set down to the credit of the present Parliament, and some of which will probably be regarded in the future as better assets to its reputation than many of the controversial proposals that arouse the emotions of the party politician, the Prevention of Crime Act is specially deserving of note as giving legislative sanction to the most important attempt yet made in this country to deal with the problem of criminality on scientific lines. It will be in the recollection of our readers that the measure in question has as its specific aim to stamp out the professional form of crime, and that in pursuance of that aim it legalises two new penal methods, each adapted to a distinct stage in the evolution of the professional criminal. For the adolescent offender, who may be considered to be in the immature and curable phase of the criminal habit, the new law provides a system of penal discipline which is essentially reformatory; while for the adult recidivist in whom that habit has become relatively fixed and irremediable it authorises a sentence of preventive detention in a sort of penal asylum under less rigorous conditions than prevail in the ordinary convict prison. In this penal asylum the reclamation of the criminal will, of course, still be retained as an ideal aim, but it will be recognised that the prospect of its realisation is too remote and too dubious to justify the more costly and elaborate measures which may be reasonably used in the case of less hardened offenders. While therefore this part of the Act will commend itself to everyone who has any practical knowledge of the criminal as a necessary though regrettable method for the protection of the community, it has much less interest than the constructive proposals for the treatment of the youthful offender. The gist of these proposals, as set out in the Act, is that a youth of what is known as juvenile-adult age—i.e., between 16 and 21 years—who is convicted of an indictable offence and is deemed likely to become a habitual criminal may, in lieu of the ordinary punishment by a fixed term of penal servitude or imprisonment, be committed to a State reformatory under an indeterminate sentence with a maximum limit of three years. During the period of detention he will be treated by those corrective methods which, since their inauguration some years ago at the Borstal prison for juvenile-adults, have been known under the name of the Borstal System; and the reformatories to be founded under the Act will perpetuate the memory of this origin in their official title of Borstal Institutions. In effect, then, what this measure does is to signify the definite adoption of the Borstal System as the approved means for the treatment of the young offender who is in the way to become a professional criminal; and therefore, in order to judge of its real value, we have first to inquire what are the methods that characterise this disciplinary system and what are the principles that underlie these methods. It will be the object of the present article to answer these questions, and thereby to show the strong claims which the Borstal experiment has on the interest and sympathy of all who desiderate the infusion of the scientific spirit into the treatment of the criminal.

The Borstal system owes its origin to the present chairman of the Prison Commission, Sir Evelyn Ruggles-Brise, K.C.B., and, like the other reforms in penal methods which have been carried out under his *régime*, it is based on the principle that punishment in its legal sense, in so far as it is not a mere act of social vengeance but purports to exercise a reformatory influence, ought to be as far as possible individualised, that, to vary the popular formula, it is more important to make the punishment fit the criminal than to make it fit the crime. Translated into terms of what is practicable, this means that different classes of criminals require different methods of treatment, and that therefore the first step in devising a rational penal system is to differentiate the several classes of delinquents and to ascertain the characteristics and the natural history of each class as a guide to the particular treatment which is suitable to it. Such a system, based on the patient study of facts, cannot, of course, pretend to the completeness and the finality of the systems deduced *en bloc* from *a priori* conceptions of the psychology of crime; it must, on the contrary, be built up gradually as each category of criminals in turn is defined and separated from the mass, and it must be susceptible, too, of growth and modification under the influence of new facts and new ideas.

It is after this fashion that the Borstal system has been framed. It is a reasoned plan for dealing with one particular aspect of the problem of crime which is of pre-eminent importance from the social point of view—namely, the development of the adolescent into the professional criminal—and it is founded on the results of a careful scrutiny of the conditions under which this evolution ordinarily occurs and of the characteristics of the professional delinquent as a finished product and in the making. In such an inquiry the first point that falls to be considered is what part in the genesis of the professional criminal belongs to innate disposition and what to the influence of the environment. This is, of course, a question which is constantly being discussed about criminals in general, and, as can be readily understood in view of the heterogeneity of the material that is embraced under that title, it is discussed to very little purpose. But futile as it obviously must be in its application to criminals in the aggregate, when asked, as in the present instance, with reference to a particular category of criminals, it is not only a reasonable but a very necessary question, since on the answer to it depends not merely the choice of the appropriate method of treatment but even the decision as to whether treatment can be of any use at all. For, whatever the fanatics of sentimentalism may say to the contrary, it is tolerably certain that if we have to do with moral idiots and instinctive criminals foredoomed to ill-doing by the tyranny of their organisation, our efforts to turn them into useful citizens will be a mere waste of labour. What we have to inquire, then, is how this matter stands with regard to the particular class of criminals we are here considering; do we find that the professional criminal shows any characteristics from which we may infer that he has become what he is through some congenital vice of cerebral development? This question can only be answered in a rough and approximate way because the nature of these characteristics is still very doubtful; but there is enough evidence available to warrant at least a general conclusion which will be sufficiently near the truth for practical purposes. This evidence goes to show that, whether we consider the adolescent or the hardened recidivist, the professional criminal cannot be assigned to a morbid or degenerate type. Thus the so-called stigmata of degeneracy, whether somatic or psychical, are rare in such criminals, and those that are met with are more usually of the kind that may be ascribed to nutritional disorders in childhood. Again, the professional criminal does not suffer from the neuroses so commonly met with in the weak-minded delinquent; and—though on this point the evidence is still quite fragmentary and of very doubtful value—there is reason to think that definite hereditary taint is not very common in the families of these offenders. Moreover, their mental capacity is much more often above than below the usual level of the social class to which they belong. It is true that, like the general mass of criminals, they are on an average physically inferior to the non-criminal population, but this fact, so far from supporting the theory of innate defect as the cause of their delinquency, can be at least as well and perhaps better interpreted as an effect of

the environment. This point has been discussed in detail in the last annual report of the medical inspector of prisons, and the statistics which he gives are of sufficient interest for our present purpose to bear reproduction here. The following table, taken from Dr. H. Smalley's report, shows the average height and weight at each year of life from 16 to 20 (*a*) in prisoners of the juvenile-adult class examined last year in the prisons of England and Wales (numbering 9483); (*b*) in the general population of all classes; (*c*) in the urban artisan class; and (*d*) in the rural labouring class. The figures for (*b*), (*c*), and (*d*) are taken from the Report of the Anthropometric Committee of the British Association.

TABLE A.

Statement showing the Average Height of Juvenile-Adult Prisoners received into the Local Prisons of England and Wales during the Year ended March 31st, 1908, as compared with the Average Height of Different Classes of the Community of the Same Ages.

Age.	Juvenile-adult prisoners (16–21) received into local prisons during the year.		General population. All classes (town and country).		Artisans (town).		Labouring classes (country).	
	Number of observations.	Average height.	Number of observations.	Average height.	Number of observations.	Average height.	Number of observations.	Average height.
		Inches.		Inches.		Inches.		Inches.
16	946	62·26	2780	64·31	1391	62·85	177	63·62
17	1738	63·25	2745	66·24	711	64·70	75	65·87
18	2452	64·08	2305	66·96	371	65·60	148	66·53
19	2554	64·18	1434	67·29	277	66·17	143	66·87
20	1793	64·94	880	67·52	175	66·50	183	66·93

Statement showing the Average Weight of Juvenile-Adult Prisoners received into the Local Prisons of England and Wales during the Year ended March 31st, 1908, as compared with the Average Weight of Different Classes of the Community of the Same Ages.

Age.	Juvenile-adult prisoners (16–21) received into local prisons during the year.		General population. All classes (town and country).		Artisans (town).		Labouring classes (country).	
	Number of observations.	Average weight.	Number of observations.	Average weight.	Number of observations.	Average weight.	Number of observations.	Average weight.
		Lbs.		Lbs.		Lbs.		Lbs.
16	946	111·1	2235	119·0	1177	112·2	169	117·2
17	1738	117·0	2496	130·9	673	121·5	80	131·5
18	2452	122·3	2150	137·4	338	129·3	135	138·7
19	2554	127·6	1438	139·6	289	131·1	140	140·2
20	1793	130·6	851	143·3	173	136·4	176	144·3

It will be observed that in each age-group the adolescent criminal is in height and weight much below the average found in the artisans of the towns, and therefore, of course, still more below the level of the population as a whole. And it will further be noted that, whereas the physical inferiority of the youth of the artisan class as compared with the average in the general population is at its maximum in the period 16–17 and decreases steadily in each successive age-group, just the reverse obtains with the juvenile-adult prisoners. In height, for instance, the deficiency of the urban artisan which in the earliest age-group averages 1·46 inches is reduced to 1·02 inches—i.e., by nearly one-third—in the group 20–21; while on the other hand the inferiority in the young criminal, which originally amounted to 2·05 inches, rises to 2·58 inches in the last age-period. And the same thing is seen, though not perhaps so distinctly, in the statistics of weight. Further, it may be remarked that in respect both of height and weight the proportion of individuals who are below the average measure increases steadily as we pass from the lower to the higher age-groups in the criminal series. The most probable explanation of these facts would appear to be that the influences which retard physical development in the poorer classes of the population up to the age of 16 lessen in force after that age in the case of the urban artisan class, but continue to act or even become stronger in the case of the youthful criminal. And this explanation is fully consonant with what we know of the manner of life in each class. The youth of the towns, if he gets to work on leaving school, is as a rule under better conditions as regards nutrition than at any previous period of his existence: the beginning of adolescence is, as Mr. Rowntree has pointed out, the first moment in the life of the labourer when he arises above the poverty line. It is therefore to be anticipated that in these improved conditions he will recover a good part of the ground lost in infancy and boyhood, and this, as we have seen, is what occurs with the youth of the artisan class. But if, on the other hand, instead of becoming a wage-earner he becomes a loafer and a gaol-bird, the under-feeding which checked his growth in earlier years will go on and will even be aggravated by an increasing irregularity in habits and by the abuse of sensory excitants which, in addition to their directly injurious effects, necessarily diminish expenditure on food. Everyone who is conversant with the life of the young town loafer knows the large part that is played in it by the cigarette and the music-hall. The influence of nurture would seem, then, to be quite sufficient to account for at least a very large share of the increasing divergence as regards physical development between the criminal and the non-criminal urban class during the years of adolescence. On this view the inferiority of physique observed in the professional criminals, who are recruited from the ranks of the juvenile-adult offenders, would appear to be simply the hall-mark of a bad environment in adolescence.

The most probable conclusion, then, to be drawn from such evidence as we have is that the professional criminal is ordinarily an individual of pretty average aptitudes in whom the influence of an unfavourable *milieu* has given a wrong direction to normal tendencies. For the acquisitive impulses, of course—and all professional crime is crime of acquisitiveness—are essentially normal and healthy in origin, and only assume an abnormal character in so far as their expression implies a lack of the due power of control. Such power of control is notoriously of slow development and is still weak and imperfect throughout the period of adolescence, so that a certain predisposition to crime of acquisitiveness may be regarded as more or less normal at this time of life. And as a matter of statistical fact it is well known that the proportion of youths and adolescents amongst predatory offenders is quite excessively high. This is clearly shown in the following table taken from the criminal statistics of 1903 and giving the proportion of persons convicted of indictable offences at various ages in relation to the total population at these ages.

TABLE B.

Proportion of Criminals at each Period of Age to Total Population at that Age.

Age period.	Proportion per 100,000 of population of same age.
Under 12 years	24
12 to 16 ,, ...	261
16 to 21 ,, ...	321
21 to 30 ,, ...	245
30 to 40 ,, ...	204
40 to 50 ,, ...	143
50 to 60 ,, ...	92
Above 60 ,, ...	56

It appears from the foregoing table that the maximum incidence of indictable crime is in the age-group 16–21, while the ratio in the period 12–16 is also very high; and in both groups, but especially in the latter, it is likely that the figures are below the truth, since there is a natural reluctance to prosecute in the case of young persons. These figures may be assumed to refer chiefly to crimes of acquisitiveness, which, of course, constitute the major part of indictable delinquency; but to make this quite clear it may be well to supplement these statistics by another table adapted from the Criminal Statistics of 1899 to show the percentage of

juvenile and adolescent offenders amongst persons convicted of various classes of crime.

TABLE C.

Percentage of Juvenile (under 16 years) and Juvenile-Adult (16–21 years) Offenders amongst Persons Convicted of Certain Crimes during the Years 1893–1899.

—	1893	1894	1895	1896	1897	1898	1899
Crimes of violence—							
Juveniles	6·39	7·80	7·67	11·84	10·59	10·15	8·73
Juvenile-adults ...	14·09	14·53	15·09	13·98	14·10	13·67	14·04
Crimes of lust—							
Juveniles	4·86	4·85	3·88	4·06	3·52	4·39	3·56
Juvenile-adults ...	20·58	18·86	19·69	19·01	19·70	17·84	18·40
Burglary, housebreaking, &c.—							
Juveniles	5·06	5·26	5·42	4·93	6·62	6·18	3·65
Juvenile-adults ...	36·21	35·39	31·41	31·74	32·21	32·12	36·21
Robbery—							
Juveniles	2·42	—	—	1·48	0·48	—	—
Juvenile-adults ...	24·19	28·99	25·35	25·74	15·94	23·26	21·60
Larceny from the person—							
Juveniles	10·01	7·47	8·69	9·86	10·48	9·41	11·59
Juvenile-adults ...	22·92	22·26	18·84	18·91	18·47	17·44	16·09
Larceny by servant—							
Juveniles	13·38	13·45	11·74	13·44	12·64	13·83	13·44
Juvenile-adults ...	27·69	29·72	28·52	29·68	29·96	28·88	27·26
Simple larceny—							
Juveniles	24·58	25·32	22·55	25·03	25·51	25·05	24·91
Juvenile-adults ...	20·93	21·99	22·18	19·51	19·63	20·22	18·28

The fact that a fourth of the offences charged as simple larceny are committed by youths under 16 years of age, and that no less than a third of the burglaries and a quarter of the robberies are the work of criminals between the ages of 16 and 21 years, is sufficiently eloquent of the strength of the predatory instinct and the weakness of inhibition during this period of immaturity. From this point of view, therefore, the adult professional criminal may be considered as showing a vicious persistence of that imperfect restraint of the acquisitive impulses which is in some degree characteristic of adolescence; and when we take note of the social and biological conditions that exist during this period in the growth of the gaol-bird we shall have little difficulty in understanding how such a fixation of the criminal habit is brought about. In the urban proletariat, from which the habitual criminal class is chiefly recruited, the boy who has reached puberty attains ordinarily to complete social independence; he has henceforth to fend for himself, and he is entirely emancipated from whatever school or parental control he may have hitherto been subject to. He thus enters on the struggle for existence, for which, owing to the natural disabilities of his age and to his lack of training, he is very poorly equipped, at a moment of rapid growth and increased organic activity, when the demands of nutrition are peculiarly urgent. To satisfy his needs he must either do productive work or live at the expense of the community; and as the former alternative requires a capacity for sustained effort which is very imperfectly developed in the undisciplined adolescent, he is naturally prone, if the fitting occasion offers, to become a social parasite. This he may be after the passive fashion of the tramp, or, if he has enough intelligence and initiative, he may display the relatively active parasitism of the criminal, who, though incapable of steady exertion, is able by cunning or by intermittent and spasmodic effort to possess himself of the fruits of other people's labour, which he is, of course, the more ready to acquire in this manner because of the weakness of his control over his primitive instincts. But, as we saw when discussing the physical condition of the juvenile-adult criminal, this mode of life does not furnish what is adequate as regards either quantity or quality for the healthy development of the organism during adolescence. There results accordingly a state of malnutrition which perpetuates and augments the nervous deficiency of which the incapacity for sustained effort and the feebleness of inhibitory control are characteristic signs; and so a vicious circle is established, the criminal habit reinforcing the unhealthy conditions which in the first instance helped to create it.

The practical inference to be drawn from all this is clear. We cannot act directly upon the unfavourable *milieu*, which can be modified only by social reforms of vast extent and of slow growth; but we can remove the individual from that *milieu* when its influence in furthering criminal tendencies is becoming apparent and we can place him under influences of a directly opposite character. And this is what is done by the Borstal system. It enforces on the adolescent criminal the discipline of regular work of a kind that will awaken his interest and teach him to use his brains and his hands; it provides him with a diet adequate to the needs of the economy during this period of active development; and it braces and steadies his nervous system by gymnastic exercises and by what is too often neglected in reformatory systems in this country—namely, a judicious use of hydropathic methods. This system applied during a sufficient term of years should effectually replace the habit of crime by the habit of sustained labour, and should therefore direct into channels of social utility the energy and capacity—often of a very high level—which would otherwise be devoted to preying on the community. From the utilitarian point of view the scheme thus fully justifies the claim that Sir E. Ruggles-Brise makes for it when he asserts that the State will recoup much of the additional cost which the detention of adolescent criminals for long periods of time will entail, by the cutting off of the supply of young recruits to the army of professional crime. We shall be able still better to appreciate its efficacy for this purpose when we have dealt with the actual working of the system at the Borstal Reformatory; this will be the subject of a separate article.

THE SIXTY-THIRD REPORT OF THE COMMISSIONERS IN LUNACY, 1909.

ON Jan. 1st of this year there were known to be under care in England and Wales 128,787 persons certified as insane, this being a number which exceeds by 2703 that recorded on Jan. 1st, 1908. The average annual increase for the ten years ending Dec. 31st, 1908, has been 2370. The annual rate of increase, which since 1904 had been declining, rose slightly in 1907 and more markedly in 1908. The private patients under care on Jan. 1st, 1909, numbered 10,393, an increase of 281, or nearly 2·8 per cent. This increase was 109 in excess of the average increase for the ten years 1899–1909. The male patients number 79 and the female 202 in excess of last year's figures, showing a rate of increase of the former of 1·8 and of the latter of 3·5 per cent. The pauper patients under care on Jan. 1st, 1909, were 117,377 in number, showing an increase of 2388, or 213 above the average annual increase of the last ten years. The rate of increase was almost precisely that exhibited by the private patients, but there is a difference in this respect as regards the sexes, the males in this category having increased by 2·2 per cent. and the females by 1·9 per cent.

On Jan. 1st, 1909, the total number of notified insane persons stood to the estimated population in the proportion of 1 to 278, or 36·02 per 10,000. This gives an increase on the ratio of the preceding year of 0·98 per cent. On Jan. 1st, 1899, this ratio was 32·96, so that in the ten years it has increased by 9·2 per cent., the proportion of such insane persons in the community having risen from 1 to 303 to 1 to 278. The actual increase in the population during the same period has been 12·1 per cent. and that in the numbers of the insane 22·5 per cent. In 1859 the ratio for all insane was 18·67 per 10,000 of population so that it is increased by 92 per cent. in the 50 years. To afford accommodation for this continuing increase in the numbers of the insane provision has to be made by local authorities. Thus in the last ten years the numbers under care had increased in all asylums by 33 per cent., in the London County asylums by 55 per cent., and in the provincial asylums by 29 per cent. It would appear that the largest increments in the numbers of direct admissions have occurred in the years following.

those of the supply of increased accommodation afforded by the opening of new asylums. It may be supposed, to account for this, that the provision of fresh accommodation encourages the removal from workhouse care of more than the average annual output and that it may also favour a greater freedom of certification.

Of persons discharged from care 7871 are stated to have recovered, giving a recovery rate, upon the total admissions, of 35·38. This rate is 1·31 lower than the rate for 1907 and 1·84 below the average for the ten years 1899 to 1908 inclusive. The recovery rate for females was 37·74, and for males 32·81. Those who were discharged as relieved or not recovered numbered 2269 and amounted to nearly 10 per cent. of the total admissions. The deaths numbered 9692, being 198 fewer than in 1907. The death-rate, reckoned on the daily average number resident, was 9·53 per cent., or 0·46 below the average for the decennium. The mean death-rate in the county and borough asylums was 9·68. It ranged from 3·9 to 18·4. The comparatively high death-rate amongst the insane may in part be ascribed to the great preponderance of certain classes of serious disease amongst asylum inmates, and in part to the fact that mental deficiency is allied with physical inferiority and a lessened power of vital resistance.

So far as the occupation of patients is concerned, it is noticeable that there was a high ratio for members of the learned professions. For example, the ratio for clergymen per 10,000 was 10·7, for barristers and solicitors 16·7, for medical practitioners 14·2, literary and scientific persons, other than medical men, 19·4, for civil and mining engineers 49·8, for artists, engravers, and sculptors 25·4, and for architects 23·2. The high figure assigned to engineers is paralleled amongst the less cultured classes by a ratio of 51·2 for ironworkers, while amongst others of these latter classes high rates are given by costermongers, hawkers, general labourers, pensioners, charwomen, indoor servants, and livery stable keepers.

The nomenclature devised by the Medico-Psychological Association in 1907 has been adopted. A place has been found for the record of instances of "moral imbecility," whilst the group of congenital and infantile mental deficiency is subdivided into cases associated with epilepsy and those not so associated. The term "organic dementia" has disappeared and that of "delusional insanity" is divided into cases of "systematised" and "non-systematised delusions." The following terms have been introduced: "Insanity with epilepsy," "insanity with the grosser brain lesions," "acute delirium (acute delirious mania)," "confusional insanity," "stupor," "alternating insanity," "volitional insanity" (as exhibited under the three characteristics of "impulse," "obsession," and "doubt"), and "moral insanity." This classification is a considerable expansion of the nomenclature hitherto used, but as it tends to a better differentiation of cases is a step in the right direction.

A special paragraph of the report is devoted to the question of the early treatment of insanity. The Commissioners record that it was with warm feelings of satisfaction that early in the year they received official notice of the munificent offer of Dr. Henry Maudsley to devote the sum of £30,000 to the foundation in London of a hospital for the treatment and study of mental diseases. It was hoped that in this hospital early treatment of the most specialised and individual kind, such as is not possible in large and inadequately staffed asylums, might be practised. The Commissioners appear, however, to have been faced with two difficulties, one having reference to the difficulty of finding a suitable site and the other having reference to the need for legislation for the removal of some of the difficulties which at present attend certification, and which lead to constant evasions of the law and to such delay in treatment as is frequently disastrous. We feel that while an official body such as the Lunacy Commission is in duty bound to see that the law is administered, it might, nevertheless, take up the broad attitude assumed by the Scotch Commission and explained in the last report of that body. The lunacy legislation under the burden of which the community still suffers is that type of legislation which is carried through at the command of sentiment. Because it appeared that there might have been a few cases in which persons had been unlawfully detained as lunatics, it was ordained that no mentally affected person was to be cared for unless he had been certified and his condition and destination brought to the notice of the authorities. Not only is anyone receiving an uncertified mentally affected patient into his or her house liable to prosecution, but the medical man who recommends such a patient to be received is also liable to prosecution. The law is plainly too ridiculous to be administered on these lines. Let us suppose such a case as would be eminently suitable for admission into Dr. Maudsley's projected hospital. A patient has had influenza or some other acute specific disorder. As a complication or as a sequel, this patient presents certain acute mental symptoms, the amelioration of which may confidently be expected in a short time. As the law now reads that patient should be certified if he is to be treated properly—that is, if he is to be received into a hospital or into a doctor's house or into a nursing home. Who in these circumstances would obey the law we do not know, certainly no one who had the patient's interests at heart. So, too, there are scattered up and down the country innumerable patients who are undoubtedly insane and yet whom it would be as futile as it would be cruel to place under certificates. We cannot but feel that if the treatment of our mentally afflicted patients was considered before the possibility of the unlawful detention of some rare individual situated amid quite exceptional circumstances, the Commission might arrive at some *modus vivendi*, perhaps such as that explained in the last report of the Scotch Commission. It appears from that report that there are persons in Scotland who receive the mentally afflicted into their houses for care and treatment even when the patient is neither certified nor under the six months rule; that such persons are regarded by the Scotch Commissioners as carrying on a useful work; that they are known to the Commissioners and relations of confidence are rapidly established between them and the Commission. We fear, however, that the adoption of these excellent methods, which can hardly be productive of anything but good, must be delayed in England by two serious impediments. In the first place, the size of the English Commission is such that it is impossible for it satisfactorily to perform even its statutory duties. Secondly, the English Commission is only in part, and that but a small part, a medical commission, with the consequence that problems, essentially medical, are dealt with by a body which in the main looks through legal spectacles. In the report before us it is again brought to our notice that in their evidence before the Royal Commission on the Care of the Feeble-Minded the Commissioners in Lunacy recommended that if two new commissioners were appointed they should be of the medical profession, and that it would be a distinct advantage if the *personnel* of the Lunacy Commission were predominantly medical.

The Commissioners in Lunacy have recently made an inquiry respecting escapes of patients from the London County Council asylums situate upon the Horton estate at Epsom. It appears that full inquiry showed that the parties sent for walks had been carefully selected from quiet and harmless patients only, and consisted as a rule of from 20 to 30 in number, in charge of one attendant at least to every ten patients; that the walks were along country roads, towns and villages being as far as possible avoided, and that strict injunctions were laid upon those in charge to prevent all inconvenience and annoyance to the public. With every precaution escapes cannot be altogether prevented, and it would be plainly inadmissible to make use of those physical hindrances to escape which even in gaols are not always successful in their object. The Commissioners had an interview with the members of the Epsom urban district council and full opportunity was given to the latter to express their views and to produce evidence of the allegations which gave rise to the inquiry. The evidence produced was, however, indefinite; there was an entire absence of dates, many of the complaints were only general in character, and from those which were specific the names of the informants had been removed from the documents and were refused on application. The Commissioners had therefore no means of investigating them or of ascertaining their truth. The Commissioners subsequently applied to the Commissioners of Police for information as to whether any specific incidents had come to the knowledge of the police in which any annoyance to the inhabitants of Epsom had been caused by escapes, and they were assured that no such incident had come to their knowledge. The Commissioners in Lunacy are satisfied that it is essential for the full attainment of the object for which asylums exist that all such

patients as are suitable should have frequent opportunities of such change of scene as are afforded by walks outside the boundaries of the asylums, and that there would be no justification in taking such a retrograde step as making asylums once more in the nature of prisons by adding to their physical barriers to render escape more difficult. The experience of over 50 years has markedly indicated that the greater freedom that insane patients enjoy the less likely are they to attempt or to wish to escape.

In a supplement to the report there is contained an interesting and useful epitome of the research work which has been carried on in various asylums during the past year. We notice that a large proportion of the work emanates from the London and Lancashire counties asylums.

Public Health.

REPORTS OF INSPECTORS OF THE MEDICAL DEPARTMENT OF THE LOCAL GOVERNMENT BOARD.

On Diphtheria in the Enfield Urban District and on Sanitary Administration by the Urban District Council, by Dr. S. W. WHEATON.[1]—This report gives a very interesting example of the association which may exist between diphtheria prevalence and faulty conditions of house drainage and dampness of dwellings. The account which Dr. Wheaton gives of the housing and sanitary conditions of the greater part of Enfield is decidedly unfavourable. The central and eastern portions of the district, including Enfield Lock, Enfield Highway, Ponders End, Bush Hill Park, and Chase Side, are inhabited by an industrial and labouring population, both male and female, employed at the Government Ordnance Factory, at the Edison and Swan electric light works, and at various other larger or smaller factories in the neighbourhood. The dwellings in these places were mainly built from 20 to 30 years ago when there was a great era of speculative building. Hundreds of houses are composed of friable sandy bricks which absorb and hold the damp and moisture. The material between the bricks contains little if any lime; it is easily detached and crumbles away with the touch, so that the whole house could be picked to pieces with ease. Roofs are badly laid and of inferior slate, letting in water at the ridges or under the eaves. Out-buildings at the back and bay windows in front are not furnished with eave-spouting, so that rainfall from them is discharged on to the ground and soaks into the foundations. Damp-courses, when provided, have often been placed so low that they are beneath the surface of the surrounding ground. Cracked walls are common. Frequently the paper peels off the walls in the bedrooms, and in back-kitchens and sculleries the walls often stream with damp and are covered with mould. Wet rot in boarded floors is common. Yards and other areas have been "cemented" by the use of loose rubble with a thin layer of cement on the top, which has soon worn through into holes which favour the fouling of the subsoil of the house. Many rows of dwellings appear to have been built in depressions from which the gravel has been taken. The eastern portions of the district are flat and traversed by streams or ditches which discharge into the River Lea. There is a separate system of sewerage which carries rain and surface water into these watercourses. There are also four outfall sewers which serve different parts of the district and lead to disposal works in Edmonton. Branch sewers have often been laid by estate owners and by private individuals as they were required for building operations and have been connected to the main sewers without due regard to the levels or to future building operations. The district council does not possess any plan of the sewers or of surface water drains. Manholes have been constructed on many of the sewers in such a manner that they act as catchpits in which decomposing filth accumulates. Various sewers have practically no gradient, so that the sewage stagnates in them. The house drains are, as a rule, what might be expected where builders' work has been scamped and done cheaply and badly. In cases where infectious disease has occurred more efficient house-drainage has been supplied, but elsewhere direct connexion of house drains with the sewers, absence of traps on sink wastes, and general fouling of subsoil due to faulty drains, are frequently met with. There is now a population of some 55,000 in the district. Diphtheria has been prevalent to a conspicuous extent in several years since 1890, and in 1908 there were 365 notified cases and 32 deaths from this disease. Dr. Wheaton gives an interesting account of the pre-epidemic period in 1908, which terminated at the end of July. During this period 70 cases were notified. There were few instances of multiple cases in houses, and little evidence of transmission of infection through school attendance was forthcoming. It appeared probable that during this period the infection of diphtheria was scattered up and down the district, but only individuals who were peculiarly susceptible to infection were attacked, and Dr. Wheaton gives some instructive cases illustrating this view. In the epidemic period from August onwards two areas were specially and conspicuously attacked—Chase Side, near Enfield town, and Enfield Lock. In this period also Dr. Wheaton was unable to establish that school infection had any important share in the epidemic. He reviews the various conditions of the affected areas, especially their position in regard to dampness of site, contamination of soil, condition of dwellings, and opportunities of escape of sewer air into the houses. In all these particulars the specially infected areas were in a much worse condition than the district as a whole. The meteorological conditions in the autumn of 1908 were exceptional. Heavy rainfall occurred in the last half of August and up to Sept. 5th, and must have carried much organic filth into the ground from the surface of yards and from defective leaking house drains and sewers, while increasing the general dampness and causing a quick rise in the level of the ground water in the affected areas. This period of rainfall was accompanied by a lowering of temperature, during which diphtheria was comparatively quiescent. When, however, the temperature rose together with the rising ground water diphtheria broke out. At the beginning of September "septic sore-throat," in addition to diphtheria, became common in the affected areas. Bacteriological examination of the secretions in these cases led in very few instances to the detection of the bacillus of diphtheria, and the passage of sore-throat of this kind into typical diphtheria has not been observed.

On the Sanitary Circumstances and Administration of the Tredegar Urban District, by Dr. J. SPENCER LOW.[2]—This report, to which a long allusion has already been made by one of our Special Correspondents, also contains an instructive illustration of the insanitary housing of a working-class population. Tredegar, in the north-west of Monmouthshire, is a coal-mining centre in which many dwellings of a very unsatisfactory type have been erected. In numerous cases the houses have been sold by the colliery company concerned to speculators, and in consequence a number of so-called "slum landlords" have come into existence in the town. According to a recent survey there were 82 cellar dwellings. Half of them had been erected for separate habitation; the remainder were mostly underground kitchens which had been converted into separate dwellings. Dr. Low considers that nearly all these cellar dwellings are totally unfit for human habitation. There are also numerous "back-to-back" houses which have been formed out of four-roomed cottages by stopping up the doorways between the back and front rooms. The original staircase serves one tenement, and the other is provided with what is little more than a ladder between the two floors. This plan has been found profitable by the owners; in some instances each half of the bisected house is more heavily rented than was the whole house before the partition. The practice results, however, in complete absence of through ventilation; smallness of the tenement leads to gross overcrowding; while the occupiers of the front tenements are cut off from access to closets and slop drains, with the result that slop water and other matters are thrown out into the street. Some of the slum property in Tredegar, according to the report, is owned by members of the district council. Dr. Low makes various suggestions for dealing with insanitary house property, and speaks with approval of dealing with houses which contain cellar dwellings by raising the roof so as to provide bedrooms on the top storey, and by connecting the cellar rooms with the rooms above them so that they can in future be utilised

[1] Reports to the Local Government Board on Public Health Subjects, New Series, No. 10. London, Wyman and Sons, Fetter-lane; Edinburgh, Oliver and Boyd; Dublin, E. Ponsonby. Price 6d.

[2] Ibid. New Series, No. 8. Price 3d.

only as kitchens or washhouses. The report also draws attention to the prevalence of diphtheria and enteric fever in Tredegar and contains recommendations for replacing the present isolation hospital, which is in a very unsatisfactory condition, by a new building.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

The City of Manchester.—The estimated population of this city in the middle of 1908 was 648,846, the birth-rate for the year in question being 28·89 per 1000, a rate which shows an increase of 0·5 per 1000 on that of the previous year. The general death-rate was 18·10 per 1000, which is slightly in excess of that for 1907. The infantile mortality amounted to 152·5 per 1000 births, and Dr. James Niven shows by an interesting table that as regards the different periods of the first year of life there has been during recent years a tendency for the mortality to fall more and more on the beginning of life—i.e., at the age-period 0–3 months. Scarlet fever was very prevalent in Manchester during 1908, but the fatality rate was a low one; there was, in fact, a diminished number of deaths with an ascending epidemic. The type of disease has, indeed, been so mild that the malady has been difficult to diagnose, and it is anticipated that a large number of cases may entirely have escaped recognition. Attention was paid during 1908 to the subject of "return" cases of scarlet fever, and inquiry was made into 106 possible cases. Of this number 50 showed some definite lesion which might be thought to explain this occurrence—i.e., 30 had rhinorrhœa, 10 otorrhœa, and 10 were desquamating. On the other hand, 50 cases presented no lesions whatever which could be regarded as possible sources of the disease. With reference to the question of the incubation period, an instructive table is furnished showing for the last five years the interval in days between the return home of the primary case and the rash of the subsequent case. It appears from this table that in a large number of cases the intervals were greatly in excess of what is generally regarded as the incubation period of this disease by English workers, and the inference is either that the alleged or possible "return" cases were not really "return" cases or the incubation period of scarlet fever is, as believed by certain American and German writers, much longer than has hitherto been believed. But there is, as Dr. T. Carnwath, who wrote this section of the report, states, the consideration that the child subsequently attacked may have harboured the infection for several days before reacting to it—i.e., if a child had been in contact with an infectious case for 14 days it may either have become infected on the first or the fourteenth day. There is, too, the explanation that the "return" case may have had some other source of infection than the recently discharged patient, or that the discharged patient was only potent for infection at intervals, as, for example, is apparently the case with enteric fever "carriers." The section of Dr. Niven's report which treats of enteric fever has been written by Dr. J. R. Hutchinson, who deals with overlooked cases, shell-fish influence, and carriers. As regards the first point, 32 cases of enteric fever occurring in a circumscribed area are dealt with, and we learn that of these 32 cases ten were notified by general practitioners, five were sent into the union hospital as suffering from other diseases but were subsequently notified as enteric fever by the union medical officer, while no fewer than 17 were discovered as a result of house-to-house visitation. Of these 17 cases, nine had previously sought medical advice, one had been under treatment six weeks, another three weeks, a third seven days, a fourth two days, while in four cases the patients had visited a doctor's surgery "two or three times." None of the cases had been notified. The harm wrought by these unrecognised cases is well brought out by Dr. Hutchinson, and he adds that it cannot be too strongly insisted upon, as urged by Caiger in Allchin's "System of Medicine," that "in temperate countries a fever which lasts a week without the appearance of any characteristic rash or any local inflammation is almost always typhoid." With respect to enteric fever "carriers," a highly instructive instance is furnished of a woman who took in lodgers in 1908 and who had apparently suffered from enteric fever as far back as 1893. It seems that she may have been instrumental in causing cases of the disease in question in 1898, 1905, 1906, 1907, and 1908. An instructive outbreak of poisoning through the consumption of arsenical sweets is embodied in Dr. Niven's report and will well repay detailed study. In April of last year the notice of the medical officer of health was called to the occurrence of violent sickness after the eating of sweets by the scholars of certain city schools, and it was found later that in all there had been amongst the scholars of four separate schools 56 cases of arsenical poisoning, there being five other cases in children under school age and one in an adult—the mother of one of the affected children. Very small quantities of the sweets sufficed to induce vomiting, even half a sweet having proved sufficient in one instance. In the majority of cases vomiting occurred within about an hour of consuming the sweets, but in some cases there was almost immediate illness, and in others one and a half to two hours elapsed. Vomiting, as a rule, terminated the attack, but in some instances there was diarrhœa in addition. Professor S. Delépine, who examined the sweets, found over nine grains of arsenic per pound of sweets, and each sweet contained about $\frac{1}{10}$th of a grain of arsenic. Several boxes of sweets were procured from the makers' premises and it was found that about half the boxes contained poisonous sweets and the remaining half non-poisonous, the appearance and smell of the two types of sweet being quite different. The greatest pains were taken to ascertain the source of the arsenic in the poisonous sweets, but unfortunately without avail. It was at first thought that the glucose used in the manufacture of the sweets would be shown to contain arsenic and that thus the outbreak would prove of a somewhat similar type to the historical arsenical beer outbreak of 1900. But the glucose found yielded no arsenic, and it was unfortunately impossible with the data available to ascertain in what manner the poison had found its way or been introduced into the sweets. Clearly some facts which ought to have been placed at the disposal of the health department were suppressed. But, as Dr. Niven observes, this outbreak brings out very prominently the difference between acute and chronic arsenical poisoning. In the former vomiting and diarrhœa, with speedy and complete recovery; in the latter catarrhal symptoms, anæmia, pigmentation, muscular atrophy, and other symptoms, lasting for months and ending perhaps fatally. The Manchester corporation sends a large number of patients suffering from pulmonary tuberculosis to the Crossley Sanatorium, and it appears that of 99 male patients thus sent up to the end of December, 1908, 18 were in full work in May, 1909, and six were in partial work; 36 were dead. The report adds that the expenditure is, so far as can be judged, a profitable one, setting aside the prevention of infection, but it should, Dr. Niven thinks, be possible to do better. It would have been useful had it been practicable to state how long those who were in full work had been discharged, and the best method of bringing out this point is by keeping the statistics of each year separately, as has been done in the case of the Durham and certain other sanatoriums. Manchester patients are also sent to Clayton Hospital with the primary object of removing infection from households—i.e., the cases sent in are more or less advanced. Of 112 males admitted up to the end of 1907, 86 were dead and seven at work in December, 1908. Of 70 females, five were in full work and five in partial work at the same date. With respect to bovine tuberculosis, an instructive account is contained in the report before us of the work carried out in Manchester under the Model Milk Clauses. Dr. A. Knyvett Gordon, medical superintendent of the Monsall Hospital, draws attention to the fact that the fatality-rate of the diphtheria cases admitted to that institution reached 19·5 per cent. during 1908, a fact which is attributed to the circumstances that the cases are admitted when the administration of antitoxin is practically useless—i.e., it is too late; and Dr. Gordon thinks that this condition of affairs will continue until antitoxin is administered to those who may have, as well as to those who have, diphtheria. It appears that only about 5 per cent. of the cases admitted have received antitoxin before admission, and this in spite of the fact that antitoxic serum is distributed free of charge to any medical man applying for it.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8010 births and 4101 deaths were registered during the week ending Sept. 18th. The annual rate of mortality in these towns, which had

been equal to 12·9 and 12·8 in the two preceding weeks, rose to 13·0 in the week under notice, and exceeded the rate recorded in any week since the middle of May last. During the first eleven weeks of the current quarter the annual death-rate in these towns averaged only 11·8 per 1000, and in London during the same period the rate did not exceed 11·4 per 1000. The lowest annual rates of mortality recorded in the 76 towns last week were 4·2 in Walthamstow, 5·5 in Hornsey, 6·7 in Aston Manor, and 7·0 in King's Norton; the rates in the other towns ranged upwards, however, to 17·8 in Wigan, 20·2 in Warrington, 20·6 in Merthyr Tydfil, and 21·8 in Bootle. In London the recorded death-rate last week was equal to 12·4 per 1000, scarcely differing from the rates in the three preceding weeks. The 4101 deaths in the 76 towns last week showed an increase of 74 upon the number in the previous week, and included 632 which were referred to the principal epidemic diseases, against 853, 768, and 720 in the three preceding weeks; of these 632 deaths, 461 resulted from diarrhœa, 59 from whooping-cough, 32 from measles, 30 from "fever" (principally enteric), 27 from diphtheria, and 23 from scarlet fever, but not one from small-pox. The 632 deaths from these epidemic diseases last week were equal to an annual rate of 2·0 per 1000, against 2·7, 2·4, and 2·3 in the three preceding weeks. No death from any of these epidemic diseases was registered last week in Hornsey, Rochdale, Barrow-in-Furness, Bury, or in Stockton-on-Tees; the annual death-rates therefrom ranged upwards, however, to 5·8 in Warrington, 6·0 in Bootle and in Merthyr Tydfil, and 6·4 in Rotherham. The deaths attributed to diarrhœa in the 76 towns, which had been 680, 602, and 526 in the three preceding weeks, further declined last week to 461, but caused annual death-rates ranging upwards to 4·0 in Hull, 4·2 in Rhondda, 4·3 in Warrington, 4·5 in Bootle, and 4·8 in Rotherham. The fatal cases of whooping-cough, which had steadily increased in the five preceding weeks from 37 to 73, declined again to 59 in the week under notice; the highest rates from this disease last week were 1·0 in West Ham and in Great Yarmouth, 1·2 in Wigan, and 2·0 in Merthyr Tydfil. The 32 deaths from measles also showed a further decline from the numbers in recent weeks, but caused rates equal to 1·6 in Swansea, 2·0 in Coventry, and 2·7 in Newport (Mon.). The 30 deaths referred to "fever," however, showed a marked increase, and exceeded the number returned in any week since January last; the annual death-rate from "fever" last week was equal to 1·0 in Portsmouth and in Walsall, 1·4 in Warrington, and 1·6 in Rotherham. The 27 fatal cases of diphtheria showed a further decline from the numbers in recent weeks, but included ten in London and its suburban districts, four in Manchester and Salford, and two each in Bristol and in Bradford. The deaths from scarlet fever, which had been 17 and 38 in the two previous weeks, declined again last week to 23, but included four in Manchester and Salford, and three both in Liverpool and in Birmingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 2347, 2377, and 2436 at the end of the three preceding weeks, had further increased to 2553 on Saturday last; 421 new cases of this disease were admitted to these hospitals during last week, against numbers increasing steadily from 245 to 411 in the four preceding weeks. Of the 1151 deaths registered in London last week, 130 were referred to pneumonia and other diseases of the respiratory system, against 108 and 105 in the two preceding weeks, and exceeded by seven the corrected average number in the corresponding week of the five years 1904–08. The causes of 23, or 0·6 per cent., of the deaths registered in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during last week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Salford, and in 55 other smaller towns; the 23 uncertified causes of death in the 76 towns included four in Birmingham, three in Liverpool, and two each in Manchester, Sheffield, Gateshead, and Burton-on-Trent.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 803 births and 431 deaths were registered during the week ending Sept. 18th The annual rate of mortality in these towns, which had been equal to 13·8 and 12·3 per 1000 in the two preceding weeks, further declined to 12·1 in the week under notice. During the first eleven weeks of the current quarter the death-rate in these Scotch towns averaged 12·5 per 1000, and exceeded by 0·7 the mean rate during the same period in the 76 large English towns. The annual death-rates last week in these Scotch towns ranged from 5·5 and 9·6 per 1000 in Leith and Paisley, to 14·1 in Edinburgh and 14·5 in Dundee. The 431 deaths from all causes in the eight towns showed a further decline of nine from the numbers returned in the two preceding weeks, and included 47 which were referred to the principal epidemic diseases, against 71 and 56 in the two previous weeks. These 47 deaths were equal to an annual rate of 1·3 per 1000, which was 0·7 below the mean rate from the same diseases in the 76 English towns. The 47 deaths from these epidemic diseases last week included 25 from diarrhœa, six from scarlet fever, five from diphtheria, five from whooping-cough, four from measles, and two from "fever," but not one from small-pox. The deaths attributed to diarrhœa in the eight towns, which had been 47, 37, and 35 in the three preceding weeks, further declined to 25 in the week under notice; they included 13 in Glasgow, three in Dundee and in Aberdeen, and two in Edinburgh and in Leith. Five of the six fatal cases of scarlet fever occurred in Glasgow. Of the five deaths from diphtheria, showing a further decline from the numbers in the two previous weeks, three were returned in Glasgow and two in Dundee; and of the five deaths from whooping-cough three were recorded in Glasgow and two in Edinburgh. All the four fatal cases of measles occurred in Glasgow. The two deaths referred to "fever" corresponded with the number in the previous week, and both were again recorded in Glasgow. The deaths referred to diseases of the respiratory system in the eight Scotch towns, which had been 45 and 25 in the two preceding weeks, rose again to 41 last week, but were 32 below the number in the corresponding week of last year. The deaths in these towns last week included 22 which were referred to different forms of violence, of which 14 occurred in Glasgow, three in Aberdeen, and two in Paisley. The causes of 15, or 3·5 per cent., of the deaths in the eight towns last week were not stated or not certified; in the 76 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 20·4, 19·0, and 16·8 per 1000 in the three preceding weeks, rose again to 17·3 in the week ending Sept. 18th. During the first eleven weeks of the current quarter the death-rate in the city averaged 16·9 per 1000, whereas the mean rate during the same period did not exceed 11·4 in London and 12·3 in Edinburgh. The 132 deaths of Dublin residents registered during last week showed an increase of four upon the number returned in the previous week, and included 12 which were referred to the principal epidemic diseases, against 37, 25, and 21 in the three preceding weeks. These 12 deaths were equal to an annual rate of 1·6 per 1000, the death-rate from the same diseases last week being 2·0 in London and only 0·7 in Edinburgh. Of these 12 deaths from the principal epidemic diseases in Dublin, six resulted from diarrhœa, two from whooping-cough, two from "fever," and one each from measles and diphtheria, but not one either from scarlet fever or small-pox. The fatal cases of diarrhœa, which had been 30, 20, and 15 in the three preceding weeks, further declined to six last week. Of the 132 deaths at all ages in the city last week 24 were of infants under one year of age, and 28 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a decline from the numbers in recent weeks. Nine inquest cases and three deaths from violence were registered during the week, and 54, or 40·9 per cent., of the deaths occurred in public institutions. The causes of two, or 1·5 per cent., of the deaths in Dublin last week were not certified either by a registered medical practitioner or by a coroner; in London the causes of all the 1151 deaths were duly certified, and in Edinburgh the proportion of uncertified causes of death was equal to 1·0 per cent.

VITAL STATISTICS OF LONDON DURING AUGUST, 1909.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING AUGUST, 1909.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1909.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.													
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
LONDON	**4,823,938**	**1**	**1128**	**351**	**1**	**77**	**3**	**23**	**285**	**2**	**1871**	**5·0**	**–**	**70**	**25**	**24**	**64**	**–**	**10**	**–**	**296**	**489**	**1·3**	**3904**	**10·5**	**106**
West Districts.																										
Paddington	151,955	–	33	11	–	–	–	1	4	–	49	4·2	–	–	1	–	–	–	–	–	4	5	0·4	92	7·9	88
Kensington	183,683	–	25	16	–	1	–	1	10	–	53	3·8	–	3	1	3	4	–	1	–	9	21	1·5	145	10·3	150
Hammersmith	125,704	–	30	15	–	3	–	2	4	–	54	5·6	–	4	–	1	3	–	–	–	5	13	1·3	88	9·1	99
Fulham	176,406	–	32	16	–	5	1	3	15	–	72	5·3	–	11	–	3	2	–	1	–	21	38	2·8	142	10·5	135
Chelsea	75,249	–	11	3	–	1	–	–	1	–	16	2·8	–	1	–	–	–	–	–	–	2	3	0·5	58	10·0	98
City of Westminster	168,883	–	29	11	–	4	–	–	6	–	50	3·9	–	2	2	–	–	–	1	–	3	8	0·6	119	9·2	72
North Districts.																										
St. Marylebone	126,027	–	51	10	–	2	–	–	12	–	75	7·8	–	–	3	–	–	–	1	–	9	13	1·3	87	9·0	57
Hampstead	94,185	–	14	3	–	–	–	1	2	–	20	2·8	–	–	1	1	–	–	1	–	–	3	0·4	44	6·1	36
St. Pancras	237,422	–	44	23	–	3	–	–	11	–	81	4·4	–	3	2	2	1	–	–	–	7	15	0·8	188	10·3	88
Islington	361,202	–	97	21	–	8	–	1	15	1	143	5·3	–	4	1	1	3	–	1	–	11	21	0·8	258	9·6	74
Stoke Newington	54,423	–	8	1	–	–	–	1	2	–	12	2·9	–	1	–	–	–	–	–	–	–	1	0·2	34	8·1	89
Hackney	237,601	–	52	9	–	4	–	2	16	–	83	4·6	–	–	–	–	4	–	–	–	15	19	1·0	183	10·0	105
Central Districts.																										
Holborn	53,802	–	8	1	–	1	–	–	3	–	13	3·1	–	1	–	–	1	–	–	–	1	3	0·7	80	12·1	53
Finsbury	95,289	–	23	20	–	–	–	–	10	–	53	7·3	–	4	–	2	–	–	–	–	11	17	2·3	117	16·0	100
City of London	18,193	–	1	–	–	1	–	–	1	–	3	2·1	–	–	–	–	–	–	–	–	–	–	–	17	12·2	53
East Districts.																										
Shoreditch	114,802	–	30	8	–	–	–	1	2	–	41	4·7	–	3	–	–	4	–	–	–	22	29	3·3	155	17·6	192
Bethnal Green	131,316	1	52	16	–	1	–	–	12	–	82	8·1	–	1	2	–	2	–	–	–	21	26	2·6	128	12·7	132
Stepney	312,525	–	78	33	1	3	1	1	38	–	155	6·5	–	6	3	2	3	–	1	–	25	40	1·7	293	12·2	134
Poplar	171,965	–	52	12	–	5	–	–	4	1	74	5·6	–	5	2	2	6	–	1	–	14	30	2·3	194	14·7	146
South Districts.																										
Southwark	211,125	–	39	15	–	1	–	–	14	–	69	4·3	–	2	1	–	6	–	–	–	26	35	2·2	220	13·6	182
Bermondsey	127,569	–	39	13	–	3	–	–	14	–	69	7·1	–	–	1	1	7	–	–	–	13	22	2·2	138	14·1	156
Lambeth	324,188	–	61	18	–	4	–	2	11	–	96	3·9	–	7	2	1	2	–	–	–	25	37	1·5	263	10·6	85
Battersea	186,036	–	41	15	–	7	–	1	10	–	74	5·2	–	6	–	–	1	–	–	–	7	14	1·0	133	9·3	81
Wandsworth	297,646	–	42	11	–	9	–	3	17	–	82	3·6	–	6	1	2	4	–	1	–	12	26	1·1	201	8·8	91
Camberwell	283,022	–	69	17	–	4	–	1	12	–	103	4·7	–	–	1	3	2	–	–	–	12	18	0·8	192	8·8	87
Deptford	118,583	–	22	4	–	3	–	–	18	–	47	5·2	–	–	1	–	4	–	–	–	7	12	1·3	95	10·4	95
Greenwich	111,014	–	18	7	–	1	–	–	6	–	32	3·8	–	–	–	–	–	–	1	–	10	11	1·3	94	11·0	119
Lewisham	160,749	–	44	10	–	1	1	2	5	–	63	5·1	–	–	–	–	4	–	–	–	4		0·6	99	8·0	66
Woolwich	133,374	–	83	12	–	1	–	–	10	–	106	10·4	–	–	–	–	1	–	–	–	–		0·1	77	7·5	56
Port of London	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

* Including membranous croup.

regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 5·0 per 1000 of the population, estimated at 4,833,938 persons in the middle of the year; in the three preceding months the rates were 6·1, 6·5, and 6·4 per 1000 respectively. The lowest rates last month were recorded in Chelsea, Hampstead, Stoke Newington, Holborn, the City of London, and Wandsworth; and the highest rates in St. Marylebone, Finsbury, Bethnal Green, Stepney, Bermondsey, and Woolwich. Scarlet fever was considerably less prevalent than it had been in the preceding month; the greatest proportional prevalence of this disease was recorded in St. Marylebone, Bethnal Green, Poplar, Bermondsey, and Woolwich. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 2207, 2539, and 2628 at the end of the three preceding months, had fallen to 2329 at the end of last month; the weekly admissions averaged 274, against 318, 353, and 358 in the three preceding months. The prevalence of diphtheria showed a marked decrease from that recorded in the previous month; among the various boroughs this disease was proportionally most prevalent in Hammersmith, St. Pancras, Finsbury, Bethnal Green, Stepney, and Bermondsey. The Metropolitan Asylums Hospitals contained 795 diphtheria patients at the end of last month, against 920, 890, and 890 at the end of the three preceding months; the weekly admissions averaged 83, against 108, 105, and 107 in the three preceding months. Enteric fever was more prevalent last month than it had been in any of the four preceding months. The greatest proportional prevalence of this disease occurred in Fulham, Poplar, Battersea, Wandsworth, and Deptford. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of last month was 55, against 49, 58, and 60 at the end of the three preceding months; the weekly admissions averaged ten, against eight, nine, and seven in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Finsbury, Bethnal Green, Stepney, Bermondsey, and Deptford. The 23 cases of puerperal fever notified during the month included three in Fulham, three in Wandsworth, two each in Hammersmith, Hackney, Lambeth, and Lewisham, and one each in nine other boroughs. One case of cerebro-spinal meningitis was notified in Islington and one in Poplar.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various boroughs, the deaths occurring in institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the four weeks ending August 28th the deaths of 3904 London residents were registered, equal to an annual rate of 10·5 per 1000; in the three preceding months the rates were 12·9, 11·1, and 10·2 per 1000. The lowest rates recorded last month were 6·1 in Hampstead, 7·5 in Woolwich, 7·9 in Paddington, 8·0 in Lewisham, and 8·1 in Islington; the highest rates were 12·7 in Bethnal Green, 13·6 in Southwark, 14·1 in Bermondsey, 14·7 in Poplar, 16·0 in Finsbury, and 17·6 in Shoreditch. The 3904 deaths from all causes included 489 which were referred to the principal infectious diseases; of these 70 resulted from measles, 25 from scarlet fever, 24 from diphtheria, 64 from whooping-cough, 10 from enteric fever, and 296 from diarrhœa, but not any from small-pox, from typhus fever, or from ill-defined pyrexia. No death from any of these diseases was recorded last month in the City of London; among the metropolitan boroughs they caused the lowest death-rates in Paddington, Chelsea, Hampstead, Stoke Newington, and Woolwich; and the highest rates in Fulham, Finsbury, Shoreditch, Bethnal Green, Poplar, Southwark, and Bermondsey. The 70 fatal cases of measles were 46 fewer than the corrected average number in the corresponding period of the five preceding years; this disease was proportionately most fatal in Hammersmith, Fulham, Finsbury, Shoreditch, Poplar, and Battersea. The 25 deaths from scarlet fever showed a decline of 11 from the corrected average number; the greatest proportional mortality from this disease was recorded in the City of Westminster, St. Marylebone, Bethnal Green, Stepney, and Poplar. The 24 fatal cases of diphtheria were 22 below the average number in the corresponding period of the five preceding years; among the various metropolitan boroughs this disease caused the highest death-rates in Kensington, Fulham, Finsbury, Poplar, and Camberwell. The 64 deaths from whooping-cough were 12 below the corrected average number; this disease was proportionally most fatal in Shoreditch, Poplar, Southwark, Bermondsey, Deptford, and Lewisham. The ten fatal cases of enteric fever were seven less than the corrected average number. The deaths from diarrhœa numbered 296, and were less than a fourth of the corrected average number in the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded in Fulham, Finsbury, Shoreditch, Bethnal Green, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was 67 per cent. below the corrected average.

Infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 106 per 1000. The lowest rates of infant mortality were recorded in St. Marylebone, Hampstead, Finsbury, the City of London, Lewisham, and Woolwich; and the highest rates in Kensington, Shoreditch, Poplar, Southwark, and Bermondsey.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet-Surgeons: W. J. Bearblock to the *Ramillies;* A. H. L. Cox to the *Achilles;* D'A. Harvey to the *Assistance;* C. S. Woodwright to the *Roxburgh;* T. Austen and H. E. Tomlinson to the *President*, additional, for three months' course at West London Hospital; and E. A. Penfold to the *Hindustan*, on recommissioning. Staff-Surgeons: W. Jackson to the *Forward;* H. C. Arathoon to the *Hermione;* G. C. C. Ross to Devonport Dockyard; E. Cox to the *Halcyon*, additional, for the *Leda;* W. J. Codrington to the *Cornwall;* J. St. J. Murphy to Haslar Hospital; and A. H. Jeremy, M. H. Knapp, C. H. Rock, J. E. H. Phillips, S. Croneen, P. K. Nix, E. Arkwright, W. H. Pope, R. St. G. S. Bond, J. G. Watt, E. C. Sawdy, R. B. Scribner, C. E. C. Stanford to the *President* additional, for three months' course at West London Hospital. Surgeons: E. J. H. Garstin to the *Blenheim:* G. R. McCowen to the *Donegal;* C. J. O'Connell to the *Sutlej;* and N. H. Mummery, S. S. H. Shannon, A. Davidson, W. N. Blatchford, G. C. Cross, and B. S. Robson to the *President*, additional, for three months' course at West London Hospital.

ROYAL ARMY MEDICAL CORPS.

Colonel G. W. Robinson has been appointed Administrative Medical Officer, Cape Town, vice Colonel A. Peterkin. Major W. S. Harrison has been appointed Professor of Tropical Medicine at the Royal Army Medical College, Grosvenor-road, S.W., vice Lieutenant-Colonel R. J. S. Simpson, C.M.G. Lieutenant-Colonel R. H. S. Sawyer has been appointed to the charge of Queen Alexandra's Military Hospital, Millbank. Lieutenant-Colonel Sir Joseph Fayrer, appointed to Hong-Kong, will embark in the transport *Rewa* at Southampton next month. Captain T. B. Unwin has been appointed to the medical charge of the officers and their families and the women and children, Wellington Lines and Aldershot Town. Captain L. W. Harrison has been appointed for duty in London. Lieutenant H. H. Leeson has taken over medical charge of women and children in the Woolwich Garrison.

TERRITORIAL FORCE.

Royal Army Medical Corps.

Attached to Units other than Medical Units.—Lieutenant William Dyson to be Captain (dated July 10th, 1909). Lieutenant Herbert M. Sylvester resigns his commission (dated August 20th, 1909).

The announcement of the appointment to a Second Lieutenancy for service with the University of London Contingent, Senior Division, Officers Training Corps, of Alfred Edward Johnson, is cancelled.

Alfred Edward Johnson to be Lieutenant, for service with the Medical Unit of the University of London Contingent, Senior Division, Officers Training Corps (dated July 1st, 1909). Gordon Clunes McKay Mathison to be Lieutenant, for service with the Medical Unit of the University of London Contingent, Senior Division, Officers Training Corps (dated July 1st, 1909).

VOLUNTEER CORPS.

Royal Army Medical Corps (Volunteers).

London District, London Companies: Captain Charles T. D. Urquhart resigns his commission (dated March 31st, 1908).

A NAVAL COURT-MARTIAL.

On Sept. 16th a court-martial was held at Portsmouth which vindicated Fleet-Surgeon C. G. Matthew of H.M.S. *Fisgard* from charges brought against him by Commander R. H. Walters of behaving with contempt towards the commander, who was temporarily, and during the absence of the captain on leave, his superior officer, and also of wilfully disobeying the commander's orders. The commander had, we believe, but recently joined the *Fisgard*, and did not carefully consider his own position but began to abridge, without inquiry, the privileges granted, doubtless for good reasons, by the absent captain to a fleet-surgeon of long service and excellent record. When he found he was not going to have his own way at once, instead of withdrawing from an untenable position he would appear to have become less prudent, to have gone further and to have fared worse. There was consequently an acute situation between the fleet-surgeon and the commander when the captain returned, the fleet-surgeon having been placed under arrest for some hours for disobedience of, and contempt towards, a superior officer. What surprises us is that Captain Hyde Smith, an older and more experienced man, when he found this quarrel on his return allowed it to go on fermenting till a court-martial was necessary. At the court-martial Captain Hyde Smith, the prosecutor, was the principal witness for the defence, and the court, of course, found Fleet-Surgeon Matthew guiltless of the alleged offences. The office of a commander requires in its exercise tact above all things. At the age of 32 to 40 he presides in the wardroom and in the absence of the captain commands officers 10 to 20 years his senior, some of them with more knowledge of the Navy than himself. Many other naval medical officers have, we believe, suffered from the zeal of commanders dressed in authority by the captain's absence. This case should therefore be of use to the whole service, and we are glad that it occurred, even while we feel the fullest sympathy with Fleet-Surgeon Matthew for the trouble and worry the untenable charges must have occasioned him.

THE BRISTOL BRANCH OF THE RED CROSS SOCIETY.

A meeting of the "Three Towns" Branch of the British Red Cross Society, organised a few years ago by Lord Morley, was held at Plymouth on Sept. 18th, under the presidency of Lady Mary Parker, for the purpose of considering how it is to meet the present requirements of the War Office in connexion with the medical organisation of the Territorial system. Colonel Russell Rendle (commandant of the 4th Southern General Hospital which will be formed at Plymouth on mobilisation of the Territorials) briefly outlined the scheme of work proposed. It was resolved to ask the Lord-Lieutenant of the county to attend a meeting for the purpose of reconstructing the branch and of arousing general interest and coöperation in the important duties it will have to assume in time of invasion or grave national emergency.

THE IMPROVEMENT IN THE HEALTH OF THE NAVY.

The annual statistical report on the health of the Navy shows that there has been a continuous improvement in the general health of the fleet during the past five years. During 1908 case, invaliding, and death ratios were lower than the average ratios for the past five years, and the average loss of service for each person dropped from 11·38 to 10·26 days. The ratio per 1000 men sick daily was largest for the irregular force, and least for the Channel Fleet. The Australia station shows the highest ratio of venereal cases—namely, 152·08 per 1000.

Correspondence.

"Audi alteram partem."

DOMICILIARY MEDICAL TREATMENT UNDER THE POOR-LAW.

To the Editor of THE LANCET.

SIR,—The gist of Dr. Beckett-Overy's letter would seem to be that he approves of the Minority Report and considers that "several of my statements are very debateable," although he has not attempted to show their fallacy. He also asserts that to suppose free medical treatment under the Minority Scheme for all the working and lower middle classes is "neither reasonable nor probable." Dr. Beckett-Overy is entitled to his opinion, and I can only regret that he did not deem it necessary to support it by reasons, for I do not think the matter is quite so self-evident as he would appear to think. In my article on the above subject I endeavoured, if somewhat inadequately, to show why, in my opinion, the carrying out of the main features of the medical scheme of the Minority Commissioners would lead to free medical attendance for all the working and lower middle classes. I must ask your readers to judge between my reasons and Dr. Beckett-Overy's general negation of them.

I am, Sir, yours faithfully,

MAJOR GREENWOOD,
Honorary Secretary, Poor-Law Medical Officers' Association of England and Wales.

Llandudno, Sept. 19th, 1909.

THE ULTRA-MICROSCOPE.

To the Editor of THE LANCET.

SIR,—I notice in your issue of Sept. 18th that Mr. F. Shillington Scales takes exception to my use of the name "ultra-microscope" for the paraboloidal immersion condenser used for dark-ground illumination. I regret to say that my knowledge of optics and microscopy is limited to the very small amount necessary for the microscope work connected with bacteriology and clinical pathology, and it was from the pathological and diagnostic and not the optical point of view that I wished to emphasise the value of this apparatus, which so far does not seem to have been generally appreciated by medical practitioners in this country. In calling this condenser the ultra-microscope I have followed the precedent set by such masters in pathology as Metchnikoff, Levaditi, Gastou, Roché, &c. (See "La Syphilis," by Levaditi and Roché, 1909, p. 375, and paper by Gastou in *La Presse Médicale*, 1908, No. 30, p. 237.)

In all the Paris hospitals by "l'ultra" is meant the paraboloidal immersion condenser, and though Mr. Scales's correction cannot be disputed, still I think that, outside the ranks of physicists and expert microscopists, by the name ultra-microscope will in the future be understood the optical apparatus whose correct but somewhat cumbrous title is "the paraboloidal immersion condenser."

I am, Sir, yours faithfully,

HUGH W. BAYLY,
Pathologist to the London Lock Hospitals, &c.

Brook-street, W., Sept. 18th, 1909.

STAPHYLOCOCCUS VACCINE AS A TREATMENT FOR ECZEMA.

To the Editor of THE LANCET.

SIR,—During April of this year I developed troublesome eczema of the beard, and as shaving is with me a daily necessity this was a cause of much discomfort. I dosed myself with mist. alba and took arsenical and ichthyol pills, applied ichthyol and creasote lotions, and everything which appeared to offer any hope of relief. Instead of improving my trouble increased and my ears became involved, so that it was difficult and painful to use the stethoscope. For this new trouble I put myself through the usual course of syringing, &c., but without any improvement. On June 10th I procured a box containing 12 doses of staphylococcus vaccine and gave myself the following injections alternately into the right and left forearms: June 10th, 100,000,000;

June 14th, 100,000,000; June 18th, 100,000,000; June 22nd, 250,000,000; and June 30th, 500,000,000.

The first injection gave me slight pain locally and a bruised feeling at the point of injection lasting two days, the second and third injections I scarcely noticed, but there was no doubt that the spots had much improved; the fourth injection gave me acute pain which spread right round the elbow but only lasted two or three minutes, the spots all cleared off, and the only trouble remaining was in my right ear, which still discharged and was painful when I used the stethoscope. At the fifth injection I experienced very acute pain lasting for two days. My forearm swelled and I feared cellulitis, my head ached very severely, and the temperature and pulse rose; for two nights I could not sleep. By July 1st my ear was quite well and I decided that I would not continue further treatment unless there should be some return of symptoms. To this date, Sept. 11th, there has been no return of the trouble, and as I have always hitherto enjoyed good health and have scarcely been invalided from work for more than a day in my 22 years of active practice it may be concluded that the cure is complete.

My experience of the vaccine on myself would lead me to suggest that a week's interval for dosing is an unnecessarily long period; for the "100 millions" injections I should suggest first a four days' interval, then a three days' interval, and a two days' interval; between the 100 and 250 millions I should let four days elapse, and should use three injections of 250, with intervals of seven, six, and five days, then a ten days' interval before the 500, and if repeated ten days between the repetitions. Another topic of interest arising out of this matter concerns the nature of eczema and its bacteriology. It should be added that when the vaccine was commenced all other treatment was discontinued. My own feeling in the matter would be to use the vaccine in all cases of like symptoms as that from which I suffered. This is, however, certain that for nine weeks I suffered much pain and discomfort, becoming worse under usual treatment, and in less than three weeks I was wholly cured by the vaccine.

I am, Sir, yours faithfully,

GEORGE WILLIAM DAVIS, M.D., B.S. Durh.

Sidcup, Sept. 11th, 1909.

IS SNOW-WATER UNWHOLESOME?

To the Editor of THE LANCET.

SIR,—In your interesting leader on "Physical Endurance" in to-day's issue you write: "It has often been shown that melted snow has a tendency to produce very harmful symptoms." I should question the proof of this. I have each summer, more or less for 20 odd years, been amongst snow in the Alps, and have drunk largely of melted snow-water, and have known dozens of men who, without harm, have done the same. I know it is not pleasant to the taste, and I know it is said, especially by guides, to cause gastric derangement. But consider—in freezing water becomes purer and the air is expelled; thus ice-water becomes heavy and non-aerated. This, however, gives no ground for the long-held opinion that snow-water is unwholesome. I, of course, speak of snow-water as snow-water, and not snow-water which has been contaminated, when it obviously becomes like other contaminated water and is a very dangerous vehicle of infection.

I am, Sir, yours faithfully,

G. ARMSTRONG ATKINSON, M.D. Edin.

Newcastle-on-Tyne, Sept. 18th, 1909.

DEATH DUTIES AND LIFE ASSURANCE.

To the Editor of THE LANCET.

SIR,—There is no class of the community to which life assurance is more necessary than to medical men, for, owing to the additional risks they run from overwork, exposure, and infection their life is more uncertain than that of most others. Unfortunately, also, the life of most medical men is a very hard one. Not only do they give gratuitously much of their time, skill, and labour to the poor, but often their just dues are unrighteously withheld from them by those who could well afford to pay. The smallness of the margin between their necessary expenses and their yearly income prevents most medical men from rapidly accumulating money, and the only way of providing for their families is that of life assurance by the annual payment of small sums. The value of foresight and thrift, not only to individuals, but to the community, has been recognised by former Governments, who have encouraged the growth of these virtues by exempting from income-tax the premiums for life assurance. But how does the present Budget propose to treat thrift and forethought? If you will allow me I will give my own case as an example, because a concrete instance will serve as an illustration better than a general statement. When I married, more than a quarter of a century ago, the income I derived from my consulting practice was very small indeed, and although I supplemented it by examinerships and by literary work, my wife and I were obliged to live in a small house in a small street, and with great economy, yet out of our scanty income, we paid every year for life assurance a sum which would have made all the difference between straitened means and easy circumstances. We were willing to do this for the sake of each other and of the children, and were encouraged to do it by the action of the Government in remitting income-tax on the money we were laying by. But this policy of fostering thrift, which previous Governments have followed, has now been thrown aside, and the present Government now proposes to penalise it. Because my wife and I denied ourselves luxuries and enjoyment in order to lay aside a provision for our children instead of spending the money every year on our own pleasures, the Government proposes to confiscate a large proportion of our savings as death duties. It may be said that in doing this the Government is only collecting tax which had been remitted on the premiums for life assurance in previous years. But is the Government justified in doing this? Let us see what would be said about such conduct in the case of an individual. Let us suppose that an employer gives to one of his men 2*d.* a week extra wages on condition that he shall lay by 5*s.* a week in order to prevent him or his family ever becoming a charge on his employer. Stimulated by his employer's action, the man denies himself, let us say, beer and tobacco for the rest of his life, his wife economises in every possible way, and thus he accumulates enough to secure his wife and family from want. But at the man's death, the employer steps in and extorts from the poor widow a large proportion of their hardly won savings on the plea that the 2*d.* a week had once been his money and he had a right to have it back with interest and compound interest. Would this act be just and right? Or would it be robbery of the basest kind? I should like to ask this further question—Is the morality of the action different if it be done by Government officials instead of by a private individual? I leave these questions to the readers of THE LANCET to answer and to decide what action, if any, they will take in relation to them.

I am, Sir, yours faithfully,

Sept. 20th, 1909. A HARDWORKING PHYSICIAN.

STEAM-CAR EXPERIENCES.

To the Editor of THE LANCET.

SIR,—Having had some experience of steam-cars I venture to reply to your correspondent "Hill Country." I have found that steam-cars are not suited for professional work for the following reasons. They take too long to get under way and when first starting out they run badly until thoroughly hot. At each stop they cool down somewhat, and if the visit is long they run badly until thoroughly hot again. They require great care in cold weather, as many parts can be absolutely destroyed by frost, and one cannot add glycerine or other material to the water to prevent freezing as one can on a petrol car. Repairs are a source of difficulty, as spares are only stocked by the maker or his agent, and few men have any idea how to effect the repairs. The lubricating oils necessary to steam-cars cannot be obtained as easily as those necessary to petrol vehicles.

My experience was that the White car, 10 h.p., was the most serviceable, steam up in six minutes, but expensive to run and not good at long hills or for hard wear, and the glands, which are difficult to get at, frequently require repacking. The Serpollet is a better hill-climber and more strongly built and cheaper to run as it burns paraffin, but it takes 20 minutes to get up steam and stands badly when visiting; also, the generator requires frequent overhauling owing to the scaling from the intense heat. It is a superb car for touring but no good for medical practice.

I am, Sir, yours faithfully,

Sept. 21st, 1909. TWICE SHY.

THE TERRITORIAL MEDICAL SERVICE.[1]

(FROM A SPECIAL CORRESPONDENT.)

V.—SOME MEDICAL ASPECTS OF MARCHING.

ONE of the essentials in good recruiting, as has been already shown, is strict attention to the normal development of the candidates' feet, as in all branches of the service his capacity to march long distances is a most necessary qualification. The conditions of marching under which a fighting force moves are quite different from those met with in any other form of exercise. The essential differences are: 1. The carrying of a heavy load, the whole marching kit amounting to 50 pounds, with the chest of the soldier constricted by three straps—(*a*) bandolier with ammunition weighing 4½ pounds; (*b*) haversack with contents, 2½ pounds; and (*c*) water-bottle full, 3¾ pounds. 2. Marching in the ranks in step in clothing not suitable for free play of the muscles. 3. The arms free to be able to use the rifle at word of command and the soldier to be ready, if necessary, to march at the double, which cannot be satisfactorily achieved if there is previous fatigue or distress; should the latter be present the shooting capacity of the soldier is seriously impaired, as the fingers become tremulous. Recent experiments carried out by a subcommittee of the Advisory Medical Board appointed by the War Office have given very reliable data connected with the physiological effects of marching as practised in the regular army. A series of experiments were made on soldiers of the various arms of the service at Aldershot and elsewhere. The marching was carried out in summer, winter, and spring to determine the effects of external conditions such as temperature and moisture. The ground covered was measured distances on country roads, and also on grass at manœuvres on Salisbury Plain, and as far as possible under the ordinary army rules for dress, rate of march and halts. The observations were concerned with the physiological changes before and after the marching with special reference to body weight, weight of clothing and equipment, pulse, blood pressure, and temperature. The temperatures were recorded as rectal and surface (face, wrist, and cheek). The more important results of the experiments were: 1. That the body temperature is considerably raised by marching. This is a most important observation, as if the thermal equilibrium is not restored the first effect may be exhaustion, which will cause the soldier to fall out on the march, and if carried to excess it may cause heatstroke in varying degrees up to a fatal termination. 2. That the influences which maintain a normal equilibrium of bodily temperature on the march depend mainly on (*a*) the temperature and moisture of the air; (*b*) the effective evaporation by means of sweat; (*c*) the influence of practice in marching and the carrying of a load by the soldier; (*d*) the pace (more heat is accumulated if the soldier is made to march quicker than his ordinary rate of stride); and (*e*) the amount and kind of clothing worn and the way it and the equipment were distributed and worn.

An experiment showing the importance of sweating is quoted in the report of the sub-committee. Five men in a march of seven miles on a hot day in September with a south-west breeze lost by evaporation an average of over three pints of water; the average gain by moisture in their damp clothes was about half a pint. The temperature of the air by the dry and wet bulb thermometers was 79° and 67° F. respectively. Other experiments where tunics were unbuttoned and where free exposure of the shirt was made showed that this procedure saved the body a loss of about a pint of water in a two-hour march of seven miles. The chief adverse meteorological factors to efficient marching are high temperature, moist air, and an absence of breeze. If the air is dry and there is a breeze evaporation of the sweat more readily takes place and therefore a higher temperature can be borne. Every means possible must be taken to narrow the margin between the increased temperature caused by exertion and the temperature of the body. This can be done by opening tunics on the march and avoiding restriction of the thorax; straps lying vertically and not crosswise on the chest should be worn. Another important aid is to avoid marching men in close formation, as the first ranks foul the air for those coming behind. This fouling of the air is well seen in a flock of sheep on the move; the back ranks appear surrounded by a halo of moisture produced by the front ranks, and shepherds for this reason have orders not to drive them in close formation, but rather to allow them to make their own pace and scatter. The height of the dry bulb thermometer on the march is another important factor, as it shows the heat the body temperature can rise to before producing heatstroke. Loss of water from the body by sweat increases the specific gravity of the blood, makes it more viscid, and puts more work on the heart and impedes the circulation. Certain omnibus companies have found that freely watering their horses in hot weather saves their powers and makes them work more. No doubt the same procedure in moderation would be beneficial in marching, as in hot weather the body must be supplied with water to replace that lost by sweat. In the soldier there are, however, two kinds of thirst—the thirst of necessity and that of habit. The former cannot be avoided, as it is the cry of the blood for water. Thirst of habit can, however, be mitigated by military training. The fitness of troops for fighting depends almost entirely on the method and manner in which marching capacities are nursed in a campaign. If men are overmarched, and their health and food are not duly and carefully looked after while on the march, they can never be expected to retain stamina necessary for a final struggle.

It was owing partly to want of appreciation of such details that our troops in South Africa failed on some of the occasions they did, notably at Stormberg. In this action the men moved out from Molteno at 9 P.M. the night before; the troops were already dead beat from a long day's march, and this was now followed again by a long night march, in inky darkness, over broken and irregular ground. At a quarter past four in the morning the action commenced. It is needless to enter into the details of this sad engagement; it is sufficient to note that fatigue and want of sleep had taken all the fire and spirit out of the troops; they dropped to sleep all over the place and had to be aroused by their exhausted officers. Regiments broke into small straggling bodies and many men were taken prisoners in their sleep by the enemy, as they were left behind by the rearguard in its retreat on Molteno. Two guns and 600 prisoners were captured by the Boers.

The following example of the effects of a forced march undertaken in India by two native regiments is also instructive. Two battalions of Sikhs when in manœuvres marched a distance of 52 miles at an average of four miles an hour, which included a three hours' halt taken about half way. The greater part of the march was performed at night; the men wore native shoes and did not oil their feet. The actual marching rate, which was between five and six miles an hour, was maintained as follows. The leading section of fours were ordered to step out as fast as they could, the fours in rear moving at the slow jog-trot much used by this class of men. The leading section of fours was frequently dropped to the rear, thus ensuring to the men in turn a change of pace, and a change of pace when on a long march is as essential to a man as to a horse, as by this means the strain on the same muscles of the feet and legs is not maintained during the entire march. Each man carried a rifle, 100 rounds of blank ammunition, and a rolled waterproof cape. Although all sick and feeble men were weeded out of the regiments before the march began, four cases of heart failure occurred as a result of the march.

One of the great advantages of moving troops by rail over large tracts of country is that their stamina is nursed and they reach their goal quite fresh. "For nearly every 100 miles that are marched continuously," says Lord Wolseley, "you will lose in strength from 2 to 3 per cent. according to climate," and this is not an over-high estimate with the present short-service system in our army. Again, our regulations are based on the erratic assumption that tents are to be carried for troops to rest in. The sooner this false and erroneous hope is dispelled the better troops will grasp what they have to do and officers gauge the marching powers of their men, for no modern army outside of a tropical climate can ever hope for

[1] Nos. I., II., III., and IV. were published in THE LANCET of July 31st and August 7th, 14th, and 21st, 1909, respectively. I have diverged in this article from my title, as there is nothing in it that holds good for the Territorial Forces more than for any other forces, but I have tried to bring before the officers of the Territorial Medical Service the points which should be present to them. In a concluding article on the food-supply of the soldier I have taken similar licence.

any mobility, and hence success, when such impedimenta as tents are included for transport.

All marches may be roughly divided into two classes, "ordinary" and "forced." The latter should be avoided as much as possible, as they break the backbone of an army. At times they are, of course, necessary, but when carried on more or less continuously they are ruinous to military efficiency. Unless there is something very great to be achieved it is better to spare men from all unnecessary fatigue, as the less that is taken out of them the better they will be and the greater will the power of their endurance be for the next struggle. Unless it is necessary, on account of the sun's power, to march extremely early, it is better not to set out until a full hour after daybreak, so that all may have a good meal by daybreak, or, better still, at daybreak. Owing to extreme heat or extraordinary military exigencies it may be necessary to march by night; but it should be remembered that night marches, except on good roads, are very wearying to the men and require half as much more time as the same distance would require in daylight. Loss of sleep if persisted in soon causes an increased sick-rate and also reduces general efficiency.

In all ordinary marches no preparation for striking camp should be made between "lights out" and "reveille," except in special cases of troops detailed to move out of camp during the night. In all cases of troops marching before breakfast some sort of light refreshment, such as coffee, cocoa, or tea with bread or biscuit, should be prepared and issued before the "fall in" is ordered; men should always quench their thirst before starting and fill their water-bottles. To save unnecessary fatigue for man and beast, the hour at which the "fall in" is ordered to be sounded should always receive special consideration. It is not necessary that the main body and rear guard should fall in at the same hour as the advance guard when the march is in column of route, as the column will extend over several miles, and it is impossible that all units can start together. The writer has seen men of a regiment almost chilled to the bone from having to stand on frozen ground for hours waiting their turn to get on the move. When possible, mounted troops should march by a different road from infantry as the former cause much dust, and the latter are very trying for the horses to keep pace with even at a walk. If different routes are not possible, long intervals should always be left between the dismounted and mounted branches of the service to allow the dust to settle. Men should not be hurried for the first two or three miles of a march, or they will get out of breath, especially if after food. They should be allowed to fall out freely if they desire to do so to answer the calls of nature. Once the men warm up to their marching the rate will increase of itself to about three miles an hour, certainly the best rate at which most work can be done with the greatest conservation of energy, and this rate should not be increased without good military reason, as an increased expenditure of energy will more readily produce fatigue and physical exhaustion.

When a march is in progress the men should have as much "elbow room" as possible, for the atmosphere becomes at times excessively close. Men will drop from exhaustion for this reason when marched in quarter column, for in the centre of such formations the want of air is absolutely suffocating. Marching men in fours is, for the same reason, also a bad formation. Marching in as open order as possible should be permissible, and where muddy portions of the road or large puddles occur men should not be deterred from circumventing them. There ought to be a halt for five or ten minutes every hour over ordinary roads, and five minutes every half hour over uneven, rugged, or hilly ground. Should troops start at or before daybreak there ought to be a halt about 8 o'clock for breakfast, and at least 20 minutes or half an hour should be allowed for this meal. Troops should invariably be allowed a substantial breakfast, and tea, coffee, or cocoa is essential. During such an interval arms will be stacked and belts loosened, and if water is available washing should be made compulsory as it is cooling and refreshing; this is especially the case if men can bathe their feet, but there is usually not sufficient time for this, as taking off boots and putties is laborious. The chief cause of men falling out on the march is from blistered feet, generally due to the issue of new boots. Men cannot march with blistered feet, but they can be much relieved if the inside of the socks is soaped before starting; and if this cannot be done, and a foot is beginning to feel tender, such soaping can be done during the breakfast halt. This will reduce friction when walking and hence reduce the occurrence of further abrasions or blistering. Other common causes of men falling out on the march are morning diarrhœa and colic, generally produced by drinking muddy water or eating unripe or over-ripe fruit or raw vegetables. Later in the day fatigue from heat and exhaustion from a tendency to heart failure come into play; such cases must be seen by the officer in medical charge of the unit and given a note for conveyance in one of the ambulance wagons in rear of the brigade. Accoutrements, such as ammunition pouches, press directly or indirectly on the heart, colon and liver, and tend to produce congestion and cardiac exhaustion. This was noted as more frequent in its occurrence among the Volunteer companies on service in South Africa, who at first from the strangeness of their surroundings and the heavy and continuous nature of their duties were more prone to suffer from the results of sun and heat exhaustion. When troops are near their destination it is always well to reduce the pace in order that they may cool down a little, and when camp is reached they should not be allowed to take off their jackets for at least half an hour, as keeping them on avoids risk of chills. When tents are up or bivouac is formed they should have a wash and a brush-up, shake their clothes, and hang their coats up in the wind to air. Feet should also be washed and blisters and abrasions dressed, a little salt or alum being valuable to put in the water as it hardens the feet.

It is extremely doubtful whether the very early morning parades now in vogue in some stations in the plains of India during the hot weather are really beneficial to either physical or military efficiency. These parades have been the custom of the service for many years, but the following points should not be overlooked. Without doubt the two hours between 5 A.M. and 7 A.M. are the hours which the majority of persons find most suitable for sleep in the tropics in the hot weather. Frequently after a restless night one falls asleep in the cool of the morning. It is urged that sleep can be obtained in the afternoon. Anyone who has visited a barrack-room at 2.30 P.M. in the hot weather can readily understand that in spite of the efforts of a few sleepy punkha coolies the temperature and atmosphere are not conducive to healthy refreshing sleep. It is again urged that as the soldier (officially) retires to rest at 10 P.M. he has ample time to sleep till 5 A.M. the following morning. A few men do undoubtedly get their full share of sleep, but the majority do not. It is not advocated that early morning parades should be entirely done away with, but it is suggested that only one early parade should take place during the week, and on other mornings about one hour's free gymnastics or semaphore from about 7.15 A.M. to 8.15 A.M. might be done. These suggestions may seem quite out of place to many combatant officers, keen on their profession, and zealous for the efficiency of their men, but all officers of the medical services have seen on numerous occasions young soldiers come on early morning parades who have suffered from want of proper sleep.

We may now consider some of the disabilities which cause bad marching, and these may be roughly considered under two heads as regards the feet: bad feet and bad covering for the feet. With regard to the feet, the *chief* cause in the soldier of footsoreness is uncleanly habits pure and simple. Often from the conditions of his environment prior to enlistment the soldier may not appreciate the great importance of cleanliness, especially in reference to his feet, and after enlistment his company officer may not, perhaps, give this subject the consideration that is its due. A horse to run well must have perfect feet, and for this reason everyone interested in its well-being pays careful attention to its hoofs, and why should not the same attention be paid to a soldier's feet? There is no more important factor to be considered than the soldier's foot when it comes to the marching power of your men, and there is no better prophylaxis against this breaking down when put to the test than careful inspection in barracks. Sailors from the nature of their profession have always clean and well-formed feet and without exception always march well. In the army, provided a man turns out on parade with clean face, hands, and equipment, all apparently seems well and nothing more seems expected as regards cleanliness. Often no one save the officer in medical charge of a unit ever sees a man's feet, and frequently at medical inspections men are seen who from all

external appearances appear scrupulously clean, but who, when ordered to take off their boots and socks, present feet very unclean. It is very questionable if sufficient facilities exist for men in barracks to maintain their feet in any degree of cleanliness; basins and soap are often at a minimum for face-washing alone, and, as already noted, no one perhaps sufficiently bothers his head or thinks it his duty to inspect men's feet, save medical officers at weekly inspections, and even a medical officer is so often overburdened by other duties as not to have sufficient time at his disposal. In recent years chiropodists have been appointed in the army, following a custom which has been in vogue for years in the continental armies. Such specialists can do an infinite amount of good if properly supported by the regimental authorities, who should make their company officers personally responsible for the marching powers and proper attention to the feet of the men of their respective companies.

(To be continued.)

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Honorary Freemen of the City.

DURING the past few days two men have been elected to the freedom of their city who have in many ways helped the medical institutions of Bristol. With the one exception of Lord Winterstoke, they are the only actual citizens who figure in the list of honorary freemen. Each is over 80 years of age and each is a representative of a Bristol family famous for philanthropic as well as commercial activity. Mr. Henry Overton Wills's recent gift to the University needs no further allusion; and the devotion of Mr. Joseph Storrs Fry to the prosperity of the General Hospital has expressed itself not only in financial help but also in a minute interest in all the details of management extending over many years.

University of Bristol.

The Vice-Chancellor of the University, Sir Isambard Owen, on Sept. 30th will deliver the inaugural address in the large hall of the University on "The Significance of a University."

The Cossham Hospital, Kingswood.

On a motion for the re-election of two representatives on the board of trustees of the Cossham Hospital an interesting discussion took place at a recent meeting of the Bristol city council. Certain members alleged extravagance and mismanagement on the part of the board, which, it was said, had failed to consult its medical staff about technical matters. These charges were replied to by one of last year's representatives, who were re-elected with an understanding to the effect that they should report as soon as possible to the city council on the financial and general management of the hospital.

The Research Defence Society.

A large audience was present at the meeting of the Devon branch of the Research Defence Society, which was held on Sept. 17th at Plymouth under the presidency of Mr. W. Paul Swain. Colonel G. M. J. Giles, of the Indian Medical Service (retired), gave an interesting address on the necessity of research by experiment on living animals, its justification, and the benefits already derived from it, both by man and the domestic animals. The branch, although started only last July, now numbers 140 members, and amongst the names of patrons, presidents, and vice-chairmen are Earl Fortescue, the Hon. W. F. D. Smith, M.P., Sir Roper Lethbridge, the Bishop of Marlborough (Dean of Exeter), Sir T. D. Acland, Bart., Admiral Sir W. Acland, Bart., C.V.O., and Mr. Eden Phillpotts.

The Bristol General Hospital.

The half-yearly meeting of the subscribers of the Bristol General Hospital was held last week. The medical report was satisfactory, and showed the excellent work performed by the medical staff of the hospital. The financial statement showed that the adverse balance against the institution was now about £3000, and an urgent appeal was made for increased subscriptions.

The Late Major P. G. Ievers, R.A.M.C. (retired).

The funeral took place recently at Plymouth, with full military honours, of Major Philip Glover Ievers, R.A.M.C. Major Ievers was the youngest son of the late Mr. Eyre Ievers, of Mount Ievers, County Clare, Ireland. He received his medical education at the Royal College of Surgeons in Ireland, and qualified L.R.C.S. Irel. in 1873, taking the L.R.C.P. of Edinburgh the following year. He shortly afterwards entered the Army Medical Department. Major Ievers served during the South African war. He has been for several years medical officer in charge of Forts Stamford, Staddon, Breakwater, and Bovisand, near Plymouth. The deceased officer was extremely popular in the "Three Towns," and much sympathy is felt for his widow and one son.

Sept 21st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Port Sanitary Authority.

AT the last meeting of the Manchester Port Sanitary Authority it was stated in Mr. W. F. Dearden's report that a sample taken from a consignment of tinned peas contained the equivalent of 4·18 grains of crystallised sulphate of copper per pound. It is found that a very unsatisfactory feature connected with the "greening" of tinned vegetables is the wide variation in the amount of sulphate of copper employed. Mr. Dearden makes the very serious charge "that the firms concerned do not trouble themselves to add the exact scientific amount to give the necessary colour, but simply throw it in indiscriminately." A sample containing just over 1½ grains was perfectly coloured, so that, as he says, it seems outrageous that the public should have "to put up with 6 grains per pound, through nothing more than improper control of the process." We shall all agree with him that the addition of sulphate of copper should be prohibited. He considers that on account of the rash way, one would be inclined to say the reckless way, in which this poisonous adulterant is used the importers should take action on their own account and insist on a limit. "I suggest," he says, "that the facts which have come to my knowledge on the subject of this harmful addition should be laid before the Local Government Board." He pointed out that it had been decided by the Court of Appeal that anything over 2 grains of colouring matter per pound was injurious. The small shopkeeper is liable to prosecution if he sells peas or other vegetables with more colouring matter and would have to pay a penalty. He of course cannot know the amount of adulteration there may be in the closed tin and should be protected against the fraud of others, as also should the public generally.

Smothered in Bed.

At an inquest held a week or two ago in Higher Openshaw, a Manchester suburb, a verdict of "Accidental death" was returned where a child of three years of age was found "smothered in bed beside the mother." The City coroner said it was a remarkable thing that three years ago he held an inquest on another child of the same woman, and in that case also the child was found smothered in bed beside her. All the evidence was that, in the first case as in the second, suffocation was the cause of death, but whether by accident or design they had no evidence to show. The coroner told the mother that if a third case were to come there the jury would not take so merciful a view as they had done in this case. He told the jury also that all these deaths were preventable, but that everything the authorities could do to put a stop to them appeared to have no effect. No doubt the majority of mothers love their children, but a percentage of them are careless as to infant life, and some are no doubt glad to be relieved of a troublesome and expensive burden. If a few of these women were convicted of manslaughter cases of "smothered in bed" would soon become less frequent.

Cotton-Mill Dangers.

All will agree that every reasonable means should be taken to lessen the risk of accidents in mills or weaving sheds. It appears, however, that one most dangerous custom still exists, that of allowing, or compelling, girl tenters in weaving sheds to sweep under the looms while the looms are in motion in the ordinary way of making cloth. The long hair of these girls is of course liable to be entangled, and it is

stated that quite recently a girl was scalped while sweeping under a loom. There is no need to dilate on the horrible nature and the painfulness of this so-called accident, nor on the distress a young girl would feel at the loss of what is held as one of her chief attractions, even if she should not lose her life. If the law does not prohibit tenters from working under looms in motion it should be altered. Public opinion should be strong enough to ensure the legal prevention of such injuries.

Looking for Escape of Gas.

It is an extraordinary thing that people who are sufficiently educated, or are supposed to be, to know something about the inflammability of a mixture of ordinary gas and air should still look for an escape of gas with a lighted candle. Recently in a house in a respectable suburb of Manchester a smell of gas in the morning prompted the master of the house and a friend to search for the supposed leakage, and the room which they examined must have been heavily charged with gas, for the moment a match was foolishly struck an explosion took place which shook the whole house, wrecked doors and windows, and seriously injured one of the two men. Some years ago a well-known medical man who practised for a long time in Manchester, a man of intelligence and education, came to a tragic end through a momentary forgetfulness, or, it might almost be said, through a momentary insane impulse, for he held out a lighted candle to find a leakage in a heavy gasalier.

Manchester's Condemned Meat.

The need for constant supervision of our food supplies is illustrated by the amount of meat, fish, &c., condemned during the four weeks ending on July 17th last. In the abattoirs and carcass market 23,702 lb., 12,295 lb. being dressed meat consigned from places other than the city, 1367 lb. of which was imported offal. Private slaughter-houses were responsible for 726 lb., railway stations for 252 lb., shops for 400 lb., and fish markets for 29,354½ lb., making a total of 54,434½ lb. All this food was unsound and its destruction implies a terrible amount of waste.

Scarlet Fever in Manchester.

Rather a serious outbreak of scarlet fever has occurred in the Cheetham Hill district, for about a hundred cases have been notified within a week. It is now diminishing and was probably due to the milk-supply, although great care is taken in Manchester to ensure the freedom of milk from disease germs.

Sept. 21st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Lunacy in Mid-Lothian and Peebles.

A YEAR'S work at Rosslynlee Lunatic Asylum, which is controlled by the Mid-Lothian and Peebles District Board of Lunacy, is detailed in the twenty-fifth annual report recently issued by the medical superintendent. At May 14th last the number of patients on the register was 332, of whom 46 were private patients and the remainder pauper lunatics. There were 77 admissions, 52 discharges, and 29 deaths during the year. Of the admissions, the causes were: fixed delusions or hallucinations, 20; organic brain disease, 3; senile decay, 8; congenital imbecility, 9; epilepsy, 10; demented, 4; curable, 23. 70 per cent. of the admissions were thus labouring under conditions most unfavourable for recovery, leaving about 30 per cent. who have a fair chance to recover. Suicidal tendencies were present in 15 cases, and hereditary predisposition to insanity was traced in 23 cases. Among the assigned causes for insanity were: drink, 10; worry, 6; shock, 1; overwork, 1; and influenza, 2.

Glasgow Medical School Extension.

The movement for the extension of the facilities for medical teaching in Glasgow has reached an important stage. About a year ago a report on the subject was approved generally by the University Court and by the Senate. The matter was then referred to a committee, which has been conducting negotiations with the managers of the Royal and Western Infirmaries, and of St. Mungo's College, with the Muirhead trustees, and (indirectly) with the Carnegie trustees. What is aimed at is the establishment of University chairs at the Royal Infirmary for the teaching of (1) medicine and clinical medicine; (2) surgery and clinical surgery; (3) midwifery; and (4) pathology. These four professors it is proposed should form the teaching staff as far as the Royal Infirmary is concerned. Under this arrangement St. Mungo's College, as at present constituted, would disappear—that is to say, that in place of a complete there would be a partial medical school at the Royal Infirmary, so that University students, if they preferred, might take their final year at that institution instead of at the Western Infirmary and Gilmorehill. Towards the accomplishment of this object it is understood that the Muirhead trustees are willing to give two sums of £400 a year each to found two of the chairs, that the funds of St. Mungo's College are to be concentrated on one chair, and that the Carnegie trustees are to supply the funds for the fourth chair. The scheme will require to be sanctioned by Parliament, and draft provisional orders for that purpose are being prepared. These will be submitted to the members of the University Court for their approval, probably at a meeting in October.

Retirement of Professor Cleland.

In view of the retirement of Professor John Cleland, F.R.S., from the chair of anatomy at the end of the present month there has been set on foot, on the initiative of the business committee of the general council of the University of Glasgow, a movement for making appropriate recognition of his long and distinguished services. A circular has been issued to the whole body of University graduates and to members of other learned bodies with which Professor Cleland is, or has been, connected, bearing the signatures of the Earl of Glasgow, the Lord Provost of Glasgow, Sir John Stirling Maxwell, Bart., Sir James Fleming, Professor John Glaister, Sir Hector C. Cameron, the Rev. Dr. John Smith, and Principal J. Yule Mackay. In the circular it is stated that the form of recognition will to a large extent depend on the amount subscribed, but it is thought that it might fitly include the provision of some fund for the advancement of anatomical and anthropological science, and for the presentation to the University of a portrait or bust by an eminent artist. A very representative committee has been formed and the preliminary list of subscriptions, annexed to the circular, shows that the movement has already met with a very appreciative response. Professor Cleland is in his seventy-fourth year and is a native of Perth, where his father practised medicine. His professional education was obtained chiefly in Edinburgh, where he was a pupil of the celebrated John Goodsir. He also obtained part of his training in Paris and in Germany. At an early period of his career he acted as demonstrator to Professor Allen Thomson in the University of Glasgow, and afterwards he became professor of anatomy and physiology in Queen's College, Galway, from which, after an occupancy of 14 years, he returned to succeed Professor Allen Thomson in Glasgow. Professor Cleland has, during his 32 years' incumbency of the chair, had many thousands of students through his hands and has enjoyed a great reputation as a teacher and as one of the most outstanding figures in scientific circles. Among the most important of his writings are his thesis on the structure and mechanism of the gubernaculum, published in 1856, and his papers upon the development of the skull and cranial variations, which appeared in the Transactions of the Royal Society in 1862 and 1870. He has collected in a volume entitled "Memoirs and Memoranda in Anatomy" many of his contributions to the scientific press of the last 40 years. In his text-book, published in association with Dr. Mackay in 1896, he included much of his original observations made in the course of his life's work. Some of Professor Cleland's most interesting and important papers are those containing his speculations on the great problems of thought as they present themselves to the naturalist. These were also collected and published under the title of "Evolution, Expression, and Sensation." In the Darwinian controversy, when it was at its height, Professor Cleland took an active part. The work of the great scientist had won his sincere admiration; but the materialistic conceptions, as they seemed to him, of development and heredity were repugnant to him. Of his other works, "The Physical Relations of Consciousness and the Seat of Sensation," originally published in 1870, is also of note. The building up of the splendid museum with which

the University of Glasgow is now enriched was to Professor Cleland a labour of love in which he never wearied. He has had many honours conferred on him. Possessed of the artistic gift, his lectures concerned with sculpture and painting have been received with the utmost appreciation. He is also the author of a work in verse. Those desiring to take part in the movement to honour him are invited to communicate with Mr. Archibald Craig, LL.B., 149, West George-street, Glasgow, the clerk of the University General Council, who is acting as secretary and treasurer.

New Hospital at Kilmarnock.

The infectious diseases hospital which the corporation of Kilmarnock has erected at Kirklandside was formally opened last week. The hospital consists of seven different blocks and stands within grounds extending to about 22 acres, the total cost of buildings, furnishings, site, &c., amounting to about £20,000. Provision has been made for 48 beds, and arrangements have been entered into with Galston, Newmilns, and Darvel to accommodate patients from these burghs.

Sept. 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Arterial Drainage: Suggested Legislation.

A MEETING of the committee of the Irish Arterial Drainage Association, which was held in Dublin last week, resulted in an important discussion. The two great modifications of the physical features of Ireland which are now engaging so much of the attention of patriotic Irishmen are those which may be effected by the methods of reafforestation and arterial drainage. The general practice of the forester's craft, in addition to providing much-needed employment at present and necessary timber for the future, when judiciously applied adds to the beauty of our surroundings and to the equability of our meteorological conditions. It must, however, be admitted that our climate is not likely to be modified by the density or continuity of its woods to anything like the same degree as that of a mountainous country would necessarily be. On the other hand, our perennially mist-laden atmosphere—to which we owe, and dearly pay for, our unequalled verdure—joins with the comparative "dead level" (not far above that of the ocean) of our island's surface to supply the unchanging dampness to the presence of which most of our "national" diseases (consumption, chronic bronchitis, and rheumatism) are in large part due. And on this account the efforts of the Arterial Drainage Association deserve the support of every Irishman who is anxious for the physical as well as material prosperity of his country. It was pointed out at this recent meeting that a new drainage Act is very necessary inasmuch as "the position of affairs in Ireland has so completely changed since 1863"—a fact which surely cannot be questioned.

Adulteration of Buttermilk.

In the Southern police court, Dublin, on Sept. 15th, Winifred Mooney of Boyne-street was again charged with offering for sale buttermilk which contained an excessive quantity of water. A sample had been sent for analysis to Sir Charles Cameron, who certified that it was adulterated with 70 per cent. of water, exclusive of the 25 per cent. allowable for churning purposes. The defendant had taken the precaution of submitting to another analyst a sample of milk which she alleged to be taken from the same vessel as that which had been analysed by Sir Charles Cameron, and obtained a certificate that it had been adulterated with only 7 per cent. of water. Owing to the extreme discrepancy between the certificates of the two analysts the magistrate decided (when the case was previously before him) to have a third sample sent for analysis to Somerset House, London. The certificate from this last source stated that the added quantity of water was 42 per cent. The magistrate, in commenting on the case, said that he was satisfied that the certificate issued by Sir Charles Cameron was confirmed by that obtained from Somerset House; also, that he was satisfied that the sample submitted to the other analyst had been tampered with, and that he would mark his sense of the fact. He fined the defendant £5 and 10*s.* 6*d.* costs. Such exemplary treatment cannot fail to have a deterrent effect. The low price of so poor a beverage as buttermilk requires a large market for the recoupment of sums relatively so substantial.

Dublin Burials.

At a special meeting of the municipal corporation of Dublin which was held on Sept. 19th the question of burial in Glasnevin Cemetery (and some questionable practices associated therewith in case of the interment of paupers) was discussed, and with it that of the establishment of a municipal cemetery. A member moved the powers of the council to establish a municipal cemetery should be put into operation without delay. This movement is due to the fact that the charges for burial at Glasnevin Cemetery are high—"monstrously high as compared with the municipal cemeteries of Derry and of Belfast." The question has been discussed over and over again without any tangible result. The "pit" burial of paupers, in which the bodies were very incompletely covered, had often been criticised, and more especially that of the remains of the bodies which had passed through the dissecting-room. There is no disputing the fact that reformation of the modes of procedure in the use of the "pit" was loudly called for.

The Motor and its Victims.

Ireland is waking up at last to a definite recognition of the possibilities of the mischief which resides in the motor-car. It must, of course, be admitted that the motor has sterling advantages which do not need enumeration, but in Ireland, although to a far less extent than in England, we are now in all the great centres continuously nauseated by the odour and blinded by the dust of the swiftly moving carriage, while the community is paying a gradually increasing toll in lives and limbs. Some of us are beginning to think that one of the functions of the inevitable motor is to provide for the replacement of a dignified aristocracy—founded on conquest and "settlement"—by a mechanical plutocracy which proceeds at a pace too rapid to answer questions about its pedigree. Many of us on this side of the Channel have been feeling the desirability of a new Road Bill, and this feeling has been strengthened into an indignant demand by the recent announcement of the crushing of seven school children against a wall by a brick-laden motor lorry weighing eight tons which had become unmanageable on a sloping roadway. Four of the children were killed. In commenting upon this deplorable accident the *Freeman's Journal* aptly points out that "a steam-roller that could never get up a pace beyond five miles an hour is still preceded by a solemn red-flag man, rather a grotesque personage, it is true, to our modern eyes acquainted with more terrible forms than the slow, somnolent pebble-grinder. No one could dream of making any such absurd procession necessary before a commercial motor lorry."

Health of Belfast.

The death-rate of Belfast for the week ended Sept. 11th was from all causes 16·7, and 3·1 from the principal zymotic diseases. No case of enteric fever was notified, but there were 11 of scarlet fever and three of diphtheria.

Monaghan and Cavan Asylum.

Sir George O'Farrell (Inspector in Lunacy) stated at the monthly meeting of the joint committee of management of the Monaghan and Cavan Asylum held on Sept. 16th, that at the present time there was a deficiency in the accommodation for 132 persons. In his opinion it would be better to provide accommodation for all the patients in one building, but as a way out of the difficulty an auxiliary asylum might be erected in the district. After a great deal of discussion a committee was appointed to go into the whole question. Many of the joint committee of management favour the view that workhouses or other suitable buildings in County Cavan or County Monaghan, or one in each county, should be utilised as auxiliary asylums.

Sept. 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Pernicious Anæmia and Cancerous Metastases in the Bone Marrow.

AT a meeting of the Société Médicale des Hôpitaux held on July 30th M. Parmentier and M. Chabrol described the case of a man, aged 45 years, who had been admitted to a hospital with all the symptoms of pernicious anæmia. This

anæmia, which was associated with cancer of the stomach, was hæmatologically of a type intermediate between splenic anæmia and Biermer's disease. Examination of the blood disclosed a condition of extreme hypoglobulia with intense leucopenia and myelæmia. The spleen was enlarged. The chief interest of the case lay in the histological examination of the bone marrow which contained cancerous elements resembling structures that existed in the primary epithelial tumour. The possibility of anæmia being due to cancerous metastases into the bone marrow was a new idea which might be useful in connexion with the etiology of the pernicious anæmias.

The Serum Reaction in Bacillary Tuberculosis.

M. Salomon and M. Sabaréanu have made a lengthy investigation of the serum reaction in bacillary tuberculosis, and, as mentioned in this column on Sept. 11th, they described their general results at the meeting of the French Association for the Advancement of Science. Observations made on 300 patients have convinced them that in advanced chronic pulmonary tuberculosis the serum reaction was usually negative, although on the contrary a positive effect was very frequent not only in pulmonary tuberculosis in the first and second stage but also in other forms of tuberculosis in evolution. In acute diseases the serum reaction was generally positive, but it probably ought not to be taken into consideration unless the diagnosis was confirmed by other symptoms. In certain diseases which modern opinion tended to regard as of tuberculous origin, and which have been called disguised forms of tuberculosis (*tuberculoses larvées*), the serum reaction appeared very frequently. It was, on the contrary, very rare in patients suffering from non-febrile diseases and in whom there was no clinical reason for presuming the existence of tuberculosis. In patients suspected of tuberculosis M. Salomon and M. Sabaréanu have never seen this diagnosis confirmed if the serum reaction had been negative, whilst on the other hand a positive serum reaction was in several cases confirmed by the subsequent course of events. The tuberculous serum reaction carried out according to the method of Arloing and Courmont might therefore furnish valuable information and ought to be regarded as an important diagnostic procedure. Its results, however, were not constant, and it must on no account be considered as more than a useful adjuvant to other methods of clinical investigation. Its absence was not sufficient to remove all suspicion of tuberculosis in a given case, but every non-febrile person the serum of whose blood had a marked and constant agglutinating power on homogeneous cultures of tubercle bacilli ought to be suspected of tuberculosis, especially if obscure symptoms of impaired general health have also shown themselves.

Serum Treatment of Epidemic Cerebro-spinal Meningitis.

At the same meeting of the French Association for the Advancement of Science M. Dopter read a paper in which he reviewed successively the epidemiology, the serum treatment, and the bacteriological diagnosis of epidemic cerebro-spinal meningitis. He said that fresh light has been thrown on the epidemiology by the bacteriological investigations made in Germany during the epidemic in Silesia in the year 1905, investigations which were continued and extended in France during the epidemic which prevailed throughout the early months of 1909. There was every reason to believe that the disease was communicated by the naso-pharyngeal secretions dispersed in all directions by the patient. The favourite habitat of the meningococcus was the naso-pharynx, where it multiplied abundantly before making its way to the meninges, and where it occasionally continued to exist for a long time after the patient had recovered from the meningeal symptoms. Convalescents were therefore just as much a source of danger to susceptible individuals as patients in the acute stage were; it even happened that the meningococcus might be harboured in the naso-pharynx of healthy persons without causing any lesion beyond catarrh of the mucous membrane of that region and without making its way to the meninges. These persons were a danger to the community because they distributed the meningococcus wherever they went. M. Dopter has prepared an antimeningococcus serum at the Pasteur Institute in Paris on a principle suggested by M. Roux, and much of it was used during the epidemic of 1909 in France. To make this serum M. Dopter immunised horses by means of living cultures only and not by microbial extracts, these cultures being injected at first under the skin and afterwards into the veins. The powerful antimicrobial action of the serum was proved by the effects produced both on patients and on the lower animals. This serum reduced the mortality, mitigated the symptoms, and restored the cerebro-spinal fluid to its normal condition. It ought to be introduced into the spinal canal after the removal of an equal quantity (or even a little more) of the cerebro-spinal fluid by lumbar puncture, so as to avoid the risk of doing harm by compression. The serum must be warmed to 38° or 40° C. before being injected. The injection must be made slowly, and it was an indispensable precaution that the patient should then be kept for several hours with the pelvis higher than the head in order that the serum might more easily find its way to the cerebral meninges. For a child of at least one year 10 cubic centimetres of serum might be injected; for older children, from 10 to 20 cubic centimetres; and for adults, 20, 30, or 40 cubic centimetres. Daily repetitions of the injections were often required until the pyrexia and primary symptoms had disappeared. In the event of a relapse the treatment must be recommenced.

Complementary Action of the Fallopian Tube and Ovary of Opposite Sides.

M. Schwartz and Mme. la Doctoresse Boyer have just published an interesting case which showed that there might be concerted action between a Fallopian tube and the ovary of the opposite side. The patient, whose menstrual history presented nothing abnormal, was now 24 years of age and had been operated on for tubal pregnancy. On the right side the ovary was removed, the Fallopian tube not being interfered with; on the left side, contrariwise, the Fallopian tube was removed, but the ovary was found to be healthy and was preserved. No approximation of the left ovary and the right Fallopian tube was made, both of them being free in the abdominal cavity. The patient made an uneventful recovery. About six months afterwards she had a normal pregnancy, which unfortunately terminated in a miscarriage at the end of three and a half months.

Sept. 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Poisoning by Methylated Gin.

A SERIES of cases of poisoning was reported to the health authorities recently, and in the subsequent investigations some unexpected disclosures were made. Within a few days seven cases of illness, all presenting similar symptoms, were observed in a Hungarian mining district and in a Vienna suburb, about 40 persons being attacked with well-marked drowsiness, associated with vomiting and violent muscular cramps. In the Vienna cases poisoning by methylated gin was only ascertained after the source of the fatal cases had been discovered in Hungary. Altogether about 3700 litres (900 gallons) of the poisonous gin have been seized and destroyed, and endeavours are being made to trace the buyers of other quantities of the liquor. How the methyl alcohol found its way into the gin could not be ascertained. This is the first instance in Austria of an alcoholic beverage containing dangerous admixtures having escaped detection by the excise and the health officers.

Health of the Labouring Classes.

The compulsory insurance against sickness amongst the working classes of Austria has led to the formation of enormous sick clubs, of which, for instance, in Vienna there is one with 310,000 members. The records and other information collected by such an organisation naturally afford a very good insight into the health of the wage-earning part of the population. A report is issued every month, and the one recently brought out deals with the events of last June. There were then on the sick list 9150 persons, or 3 per cent. Among these patients the number suffering from tuberculosis of the respiratory organs was 1050, being 12·5 per cent. of all cases of disease, or 0·33 per cent. of all members; 50 persons suffered from pneumonia, 363 from the bronchial type of influenza, and 973 from other diseases of the

respiratory organs; altogether over 28 per cent. of all cases were affected with some disease or other of the air passages. It must be added that the weather was rather inclement and damp. The alimentary canal was attacked in 750 cases, the organs of circulation in 366 cases. There were 1869 accidents causing absence from work for more than three days. The number of deaths was in this month 291, of which 122, or 40 per cent., were due to tuberculosis and 32 to other diseases of the air passages, whilst 10 injuries proved fatal. In a series of reports the preponderance of affections of the air passages is so distinctly marked that the medical board of the Cassa, or sick club, calls the attention of the managing board to the fact. Increased protection of the working classes against the various causes producing these diseases is urgently needed. The constant high morbidity and mortality from tuberculosis form another factor to be considered very carefully. In this country the tuberculous patient has not such numerous facilities for restoration of health as in Germany, England, France, and the United States of America. At present there are only a few open-air sanatoriums and these are rather expensive. In the report of the managing committee it is suggested that the sums spent on sick pay for the tuberculous members of the Cassa would be better spent in erecting a tuberculosis hospital and treating the patients until they are again fit to work. This end is to be aimed at rather than keeping the patient away from work with the confident expectation of his more or less early death, which is what the present system really amounts to. The high figure of ten fatal injuries out of 1869 accidents calls also for a better enforcement of the law by the factory inspectors.

Proposed Restrictions on the Sale of Patent Medicines.

A memorandum drawn up by the medical council of Silesia has been placed before the Association of Austrian Medical Councils (*Oesterreichischer Aerzte Kammern Tag*) with a view to suppress the ever-increasing sale of patent medicines. The memorandum will naturally receive support from the majority of practitioners, but in addition to presenting the views of its authors on the subject of patent or proprietary medicines it also puts forward several patriotic and commercial arguments which perhaps are not absolutely convincing from a medical standpoint. Anyhow, the motives are sound. The proposal recommends that in Austria, as in England and Japan, a duty should be imposed upon every patent medicine, but on a much higher scale—namely, from 30 to 50 per cent. of the sale price. The income from this source could be applied in various ways for the benefit of the public medical services, such as in providing for the increase of medical inspection, for the reduction of the rates and taxes of charitable institutions, and for the remuneration of medical services hitherto rendered to the public gratuitously by the profession. A second memorandum on the same subject has also been presented to the association; this one in opposition to "State help" recommends "self-aid" as the best means of suppressing the patent medicine boom, which not only injures the public and the medical profession but also lessens the income of the apothecaries. The leading proposal of this memorandum is that each medical council should instruct and bind all its members to abstain from prescribing any remedy the manufacturer of which does not comply with the requirements of the councils, these requirements being as follows. The medicine must not be accompanied with printed matter with explanations of the indications for its use or with medical testimonials. This should apply to all ready-made, bottled or packed substances, also pills, powders, mineral waters, and ointments. Such remedies must not be advertised except in medical journals and periodicals. Remedies the labels or wrappers of which show anything more than their name or which are advertised in ordinary newspapers should be boycotted by the profession. This is easily done by each medical council, as all practitioners of each district must belong to some council or other, and the resolutions of these councils are binding on all their members. Both schemes have been received in a spirit of criticism by a considerable part of the profession. Neither is satisfactory, and the association will probably have some difficulty in reconciling the needs of the public and the desire of the profession without harming anybody.

Sept. 20th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Forty-second Annual Meeting of the Canadian Medical Association.

THE forty-second annual meeting of the Canadian Medical Association was held in Winnipeg, Manitoba, the half-way house of Canada, on August 23rd, 24th, and 25th, just prior to the meeting of the British Association for the Advancement of Science. About 350 medical men were in attendance, the largest number in the history of the organisation. It was the second time that the Association had met in Winnipeg, and it now did so under the presidency of Dr. R. J. Blanchard (Winnipeg), one of the pioneer physicians of the West, Dr. George Elliott (Toronto) acting as general secretary. The general secretary's statement referred to the work which has been done towards securing a Bureau of Health for Canada, the incorporation of the Association by Act of Parliament, its re-organisation permitting affiliation of the provincial medical associations, Dominion registration, and the work of the Milk Commission. One of the features of the meeting was the discussion on interprovincial reciprocity and Dominion registration. This was introduced, in the absence of Dr. T. G. Roddick, who has fathered this cause, by Dr. R. W. Powell, who, after reviewing the history of the movement and the connexion of the Canadian Medical Association therewith, proposed the following motion, which was seconded by Dr. R. S. Thornton (Deloraine, Man.):—

That this Canadian Medical Association now in session urge upon Dr. Roddick the great importance of impressing on the Government and Parliament of Canada the desirability of so amending the Canada Medical Act (the enactment of which had been secured by Dr. Roddick in 1902 and which provided for a Dominion Medical Council) of 1902 that when five or more provinces agree to the provisions and pass the necessary legislation to make it effective, the Bill may become law, and apply to those provinces which have so legislated. That in order to strengthen Dr. Roddick's hands a committee be formed of representatives from each of the provinces to consult with him on the provisions of the Bill and as to the amendments necessary or desirable, and finally, that the various colleges of physicians and surgeons or provincial licensing boards in the Dominion be respectfully invited to nominate at least one of their own numbers to serve on such committee.

Dr. L. P. Normand (Three Rivers, Quebec), who was present representing the College of Physicians and Surgeons of the province of Quebec, offered an amendment to the effect that the Canadian Medical Association shall secure reciprocity between the various provinces of the Dominion on the same basis as with Great Britain. The resolution passed almost unanimously. Representatives were present and spoke for all the provinces with the single exception of Prince Edward Island, all practically favouring the scheme of Dominion registration. As there is a movement at the present in the western portion of Canada to secure reciprocity amongst the profession in Manitoba, Saskatchewan, Alberta, and British Columbia, and another in the Maritime Provinces to secure similar conditions in Nova Scotia, New Brunswick, and Prince Edward Island, something tangible may result in the immediate future with regard to this time-honoured question.

The presidential address was delivered by Dr. Blanchard and dealt with a wide range of subjects. Referring to quacks, the President thought these should be dealt with by an intelligent public outside of the ranks of the profession. He argued that the Government makes it illegal to sell diseased meat but does not leave the prosecution of the offender to the honest dealer. It was inconsistent that the prosecution of the quack should be relegated to the medical profession. Speaking of the typhoid epidemics which in the past have run riot over Winnipeg, Dr. Blanchard said that this preventable disease had in the past three years cost Winnipeg over $1,000,000. Overcrowding of the profession was also dealt with at some length and the remedy seemed to him to be a higher educational standard of the profession. The hospital problem was also given attention, particularly as Winnipeg is at the present time considering increased hospital accommodation.

The milk commission of the Association made a report on the work they had done in the past year, which will go a long way towards improving the entire milk-supply throughout Canada. Mr. A. McGill, chief analyst for the department of Inland Revenue for Canada, was present by invitation and

discussed this report; so also was Mr. Rutherford, chief veterinary officer for the Dominion, who spoke chiefly on tuberculosis. Professor J. George Adami of McGill University, Montreal, delivered the annual address in Medicine, the subject of which was Certain Aspects of the Typhoid Problem. Dr. James Bell (Montreal) delivered the annual address in Surgery, taking for his subject Cancer of the Prostate. In the section on Ophthalmology Dr. R. A. Reeve (Toronto) gave an address on the Progress of Ophthalmology; and in the section of Obstetrics Dr. Adam H. Wright (Toronto) performed the same service. Dr. W. J. May (Rochester, Minn.) was present and read a paper before the Surgical Section on the Removal of Sigmoid Tumours. There was an interesting discussion on Diseases of the Kidney in which Dr. R. P. Campbell (Montreal), Dr. Walter McKeown (Toronto), and Dr. John T. Fotheringham (Toronto) participated.

The social plans were left in charge of a committee with Dr. H. H. Chown (Winnipeg) as chairman and Dr. Harvey Smith (Winnipeg) as secretary, and much credit is due to them for the splendid arrangements made. In the way of entertainments there was a conversazione on the evening of the first day, a smoking concert on the evening of thesecond day, a garden party on the afternoon of the second day given by his Honour the Lieutenant-Governor of the province of Manitoba, Sir Daniel Macmillan, and a steamboat excursion up the Red River on the last afternoon of the Congress. Toronto was selected as the place of meeting for 1910, with Dr. Adam H. Wright, professor of obstetrics in the University of Toronto, as President. Dr. H. B. Small (Ottawa) and Dr. George Elliott (Toronto) were re-elected treasurer and general secretary respectively. The finance committee, which will have charge of establishing a journal to be the official journal of the Association, is composed of Dr. J. T. Fotheringham (Toronto), chairman; Dr. S. J. Tunstall (Vancouver); Dr. Murray MacLaren (St. John, N.B.); Dr. James Bell (Montreal); and Dr. F. N. G. Starr (Toronto); together with the president and general secretary. Dr. A. T. Shillington (Ottawa) was appointed chairman of the committee on medical legislation and of the committee on hygiene and public health; Dr. R. A. Reeve (Toronto), chairman of the executive council of the committee on medical education; Dr. E. Ryan (Kingston), chairman of the committee on reports of officers; Dr. H. B. Small (Ottawa), chairman of the committee on amendments to constitution and by-laws; Dr. J. H. Elliott (Toronto), chairman to the committee on necrology; and Mr. C. J. Hastings (Toronto), chairman of the Milk Commission.

In the last seven years the administration of the Canadian Medical Protective Association has been perfected and the President of that organisation, Dr. R. W. Powell, Ottawa, reported to the Canadian Medical Association that in all that time not a single case of which his Association had undertaken the defence had been lost, and that the treasury had a comfortable balance of over $4000. The fact that the medical profession of Canada has an organisation of this character is now known throughout the country and acts as a retarding influence on suits for so-called malpractice.

Toronto, Sept. 7th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Typhoid Carrier.

AN unusual request was recently made to the Premier of Victoria by the authorities of the Nhill Hospital. A man was admitted to the hospital in August, 1908, suffering from a small ulcer of the leg, which rapidly healed. For some reason the medical officer suspected the man might be a typhoid carrier and submitted specimens to Dr. R. J. Bull of the University of Melbourne. Dr. Bull concluded that the patient was harbouring the typhoid bacillus, and inquiries into the previous history showed that at one place a roommate became affected with typhoid, and that at another house in which he stayed five inmates were seized with fever. The man was accordingly detained in hospital with his own consent, and the committee asked for a special grant in view of the circumstances of the case. The Premier promised to accede to the request.

Pure Foods Act.

The Legislature of New South Wales recently passed a Pure Foods Act. An advisory committee has forwarded to the Chief Secretary regulations dealing with a great variety of foodstuffs. The standard for milk is 8½ per cent. of solids not fat, and 3½ per cent. of milk fat.

Quarantine.

Provisional regulations under the new Commonwealth Quarantine Act have been passed by the Federal Executive Council. The periods of quarantine are: 21 days for smallpox, 10 days for yellow fever or plague, and five days for cholera. Exhaustive provisions are included under disinfection. 14 days' notice must be given to the chief quarantine officer of arrival of imported animals. The importation of hides, skins, wool, hair, and bones is subject to restriction. Notice must be given of landing of plants, including seeds and nuts. The following have been proclaimed "infected places" on account of plague: Arabia, Asiatic Turkey, China, East Indian ports, Egypt, Hong-Kong, Japan, Madagascar, Mauritius, Mexico, Philippines, Polynesia, Singapore, and South and East Africa. No animals may be imported except horses, asses, mules, cattle, swine, sheep, and dogs, and wild and undomesticated animals for exhibition or scientific purposes from any part of the world. It is the duty of every medical practitioner in Australia on becoming aware of, or suspecting the existence of, any quarantinable disease to immediately report the matter by telegram or speediest available means. A fee of 2*s.* 6*d.* is attached to this duty.

Clinical Teaching.

At the last meeting of the Melbourne University council the following motion was proposed:—

> That the council appoint a committee to report as to the clinical teaching of the medical students, to advise the council as to whether any improvement can be made in the present system, and to collect information as to what is done for the students in this part of their training in other Australasian medical schools.

After some discussion the motion was carried and a committee, consisting of Mr. Justice Cussen, Mr. Frank Tate (Director of Education), and the mover, Dr. MacFarland (Master of Ormond College), was appointed; and Dr. J. W. Barrett and Dr. Grant were attached in the position of advisers.

The Problem of Tuberculosis.

Dr. W. P. Norris, late chairman of the Board of Health, has presented a report to the Victorian Government on the treatment of consumption. He advises that the provisions of the Milk and Dairy Supervision Act should be extended and generally enforced (at present it is confined to metropolitan areas) and that the Meat Supervision Act should be extended to the whole State, or, at least, to all centres of population exceeding 2000 persons. Dr. Norris recommends the establishment of tuberculosis dispensaries for the detection and supervision of cases in populous centres by municipal councils. He classes institutions for the treatment of the disease as observation wards and centres for examination and diagnosis; sanatoriums for remediable cases; invalid homes for advanced cases; and industrial settlements for those who have regained strength and for segregating those who would tend to spread the disease. The pressing need is to deal with pulmonary tuberculosis. Deaths in Victoria from phthisis amount to over 1200 annually, and Dr. Norris estimates there are 5000 consumptives living. 1500 of these may be regarded as unrecognised. Not more than 500 are able to provide for their own needs. 1000, while recognising their condition, are able to continue their employment, which leaves about 2000 for whom public help is required. About 800 of these may be remediable. He proceeds to show the great economic advantage to the State in spending money on the equipment of sanatoriums and dispensaries for the treatment of tuberculosis. The Premier has expressed his intention of giving effect to some of these proposals.

New Appointment.

Dr. B. Burnett Ham has been appointed to succeed Dr. Norris as chairman of the Board of Public Health in Victoria. Dr. Ham was appointed in 1900 as chairman of the Queensland Board, and has continued in that position up to the present time. During his connexion with the Queensland department Dr. Ham has gained reputation as a capable organiser and administrator, and has published several works dealing with public health topics. Dr. Ham is a native of Victoria but was educated for the medical profession at Guy's Hospital, and holds the diploma of public

health of the University of Cambridge. The present salary attached to the position is £800 per annum.

Lodge Practice.

The members of the Border Medical Association (New South Wales and Victoria) have notified the lodge authorities in their districts that they will enforce the resolutions passed at the recent medical congress with reference to lodge patients. They are that no patient will be passed for admission whose income (with that of his wife) exceeds £208 per annum, and that none will be attended at contract rates whose joint income exceeds £312 per annum. The action will probably lead to a considerable upheaval in Victoria, where the lodges are more masters of the situation than in any other State.

Health Administration.

The Victorian Government has in view a new system of appointment for the Board of Public Health. The Board as at present constituted will probably be done away with. It consists of a medical chairman and members elected by groups of municipalities. The change contemplated is in the direction of the Queensland Board, which is composed of five members excluding the Commissioner, who is *ex officio* chairman. At least two members must be medical men and at least one must have had not less than two years' experience of local government as a member of a local body. Salaries and allowances will be decided by the Governor in Council.

Obituary.

Two well-known members of the Victorian medical profession have died recently. Dr. J. F. Usher of Ballarat was one of the oldest practitioners in that city. He held the position of city health officer for many years and retained it until his death. Dr. Usher was a native of Ireland, and was very proud of his family tree.—Dr. A. Shields was a graduate of Edinburgh and arrived in Victoria in the early "sixties." He soon after became associated with the Government medical service and was the medical officer and gaol surgeon for over 30 years. He retired some years ago owing to advancing years and has recently been in indifferent health, succumbing finally to heart failure following a paralytic seizure. The late Dr. Shields was a man of more than ordinary force of character, with a strong leaning to the older Scotch Sabbatarian point of view. He leaves three sons who are members of the medical profession, the eldest, Dr. Douglas A. Shields, being in-patient surgeon to St. Vincent's Hospital, Melbourne.

Nomination of a Medical Man as Speaker.

The sudden death of Sir Frederick Holder creates a vacancy in the office of Speaker of the Federal House of Representatives. The Ministry has nominated the Hon. C. Carty Salmon and he is practically certain of election. Mr. Salmon holds the Scottish triple qualification, and for a short time practised his profession in Melbourne. He was soon after elected to the State Assembly and proceeded to devote the whole of his time to politics. He has represented Laaniecoorie since the Federal Parliament was created and assumes by right the title of honourable on that account. Mr. Salmon has been Chairman of Committee in the Federal House and President of the Australian Natives Association.

August 10th.

WE have received the tenth annual report of the Society for the Prevention and Cure of Consumption in the County of Durham, which shows that during the year the work of the society had been carried on briskly. The chief event of the year was the purchase of a mansion, grounds, and the adjoining ten acres of land at Wolsingham for use as a sanatorium for women. The purchase was made in October, 1908, and so promptly was the legal work done, at a nominal sum we may add, that on April 27th of this year the first patients were received. The Wolsingham Sanatorium will provide beds for 28 women, leaving the original institution, the Stanhope Sanatorium of 45 beds, free for males. Good results have been obtained by the society in spite of the discouraging fact, which in the present state of public knowledge will always occur, that only a small proportion, about one-third, of the cases presented themselves in the early stage of the disease.

Obituary.

PROFESSOR ALFONS VON ROSTHORN.

Professor Alfons von Rosthorn, whose death took place lately under circumstances of tragic suddenness, was an eminent gynæcologist and one of the most recently appointed professors in the University of Vienna. The sadness of the event was intensified by the fact that he was still in the prime of life, having been born in 1857. When a young man he applied himself to the study of zoology and did not qualify in medicine until he was about 28 years of age. Ever since taking his medical degree he had devoted himself exclusively to the study of gynæcology and obstetrics, and held the appointments of assistant at first to Professor Breisky and afterwards to Professor Chrobak, who were in their time two of the leading gynæcologists in the German-speaking part of the Continent. His investigations into the pathology of the female reproductive organs having made him prominent amongst the workers in his specialty, he was appointed *privat-docent* and soon afterwards professor of obstetrics and gynæcology in the University of Graz. He subsequently became professor of the same subjects in the University of Heidelberg, and on the retirement of Professor Chrobak from the post of director of the first gynæcological clinic in Vienna Professor von Rosthorn was, with considerable difficulty, induced to accept a call to the vacant office. He accepted only on the condition that the new clinics, which were then in course of erection, should be up to date in all respects, and thus to him is due in a large degree the fact that these clinics are really models of charitable institutions devoted also to teaching purposes. Professor von Rosthorn was honoured by the Emperor Francis Joseph, who conferred on him the title of Imperial Councillor. He quickly gained the confidence and the admiration of his students. When he took over the new clinics in 1908 he delivered an introductory lecture on the consideration of pain in gynæcology and obstetrics. In this lecture he expressed himself with such earnestness on the duty of doing everything possible for the patients that the audience at once realised the sympathetic character of the new professor. He wrote in conjunction with Professor Chrobak the volume on Diseases of the Female Generative Organs in Nothnagel's Handbook and the article in Veit's Handbook on Diseases of the Pelvic Fasciæ, besides a number of monographs on gynæcological topics. During the 12 months which he spent in Vienna he rapidly reached a foremost position amongst his colleagues, and although he was subject to attacks of angina pectoris no one would have thought that his end was so near. He was out hunting in the neighbourhood of Graz when suddenly, and after making a good shot, he fell down dying.

The clinic will be managed by the assistant, Dr. Wagner, until a successor to Professor von Rosthorn is appointed and takes it over.

BENJAMIN GRAY HEALD, L.R.C.P. EDIN., L.F.P.S. GLASG., J.P.

Mr. Benjamin Gray Heald died on August 29th at his residence in East-street, Leeds, after a long illness. He was a son of the late Mr. Samuel Linley Heald, a well-known Leeds surgeon, and his medical studies were pursued in the medical school of his native city. In 1879 he took the diploma of L.F.P.S. Glasg., and in 1880 that of L.R.C.P. Edin., immediately settling in practice in the East-street district of Leeds.

For about 18 years Mr. Heald took a very prominent part in municipal affairs. He entered the city council in 1889, being returned as a Liberal at a by-election in the East Ward. This seat he held without a break for 14 years, during which he had to encounter three contested elections and was twice returned unopposed. In 1903, however, the seat was gained by a political opponent, but Mr. Heald soon reappeared in the council, and became chairman of the sanitary committee. The new isolation hospitals at Manston were already in course of construction, and during his term of office they were opened. Mr. Heald was also deputy chairman of the gas committee and was placed on the commission of the peace for the city in 1906. At the election

in 1907 he lost his seat on the council, and about this time was appointed medical officer and public vaccinator of the Ninth District of the Leeds Union.

A hearty admirer both of the drama and of football, Mr. Heald was for many years honorary medical officer of the Actors' Association and of the old Leeds Parish Church Football Club. He was 62 years of age at the time of his death, had been twice married, and has left a widow, who holds a prominent position among ladies interested in political work. A funeral service was held at Leeds parish church, and the remains were cremated at Lawnswood.

HACKWORTH STUART, M.D. LOND., D.P.H. CANTAB., F.R.C.S. EDIN.

Dr. Hackworth Stuart, of Hanley, Staffordshire, died on Sept. 6th as the result of an unfortunate accident. On Sept. 3rd he received an injury to his head by falling in the yard at the rear of his house, but considering it to be quite trivial he afterwards went out with some acquaintances in a motor-car. Next day he was worse, a consultation of his medical friends was held, and trephining was resorted to on the 5th, but all that surgical skill could do proved unavailing. At the inquest, which was held on Sept. 7th, the events leading up to the fatal issue were described, and the jury returned a verdict to the effect that death was due to injuries accidentally sustained. Dr. Stuart was the son of a Wesleyan minister. His medical education was received in London at University College and St. Mary's Hospital, and he took the diplomas of M.R.C.S. Eng., L.R.C.P. Lond., in 1899, followed by the degrees of M.B. Lond. in 1900, and M.D. in 1902; he was also admitted D.P.H. Cantab. in 1901, and F.R.C.S. Edin. in 1906. For a time he held appointments as assistant medical officer in some of the infectious hospitals of the Metropolitan Asylums Board, and had a share in the preparation of a "Summary of Laparotomies for Enteric Perforation" published in the reports of that Board in 1903. In 1904 he received an appointment as medical adviser to the Hanley Education Committee, being entrusted with the investigation of the sight, hearing, mental capacity, and general physical condition of the children attending the committee's schools. In connexion with this work he published a pamphlet entitled "The Doctor in the Schools," its subject being the medical inspection of school children under the Education Act of 1907. Another appointment held by him was that of medical officer to the Werrington Industrial Schools.

Dr. Stuart, who was about 33 years of age, has left a widow and a little daughter. The funeral took place at Hanley Cemetery on Sept. 8th in presence of a large gathering of acquaintances and personal friends.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Professor Max Edouard Jaffé, senior surgeon to the Municipal and Jewish Hospital, Posen, in consequence of injury to the spine due to a fall. He was 51 years of age. Dr. Krienes, formerly *privat-docent* of ophthalmology in the University of Breslau. For some years he had practised in Barmen and had written a good deal in medical journals.

Medical News.

PRODUCTION OF RADIUM.—Reuter states that the Austrian Ministry of Public Works has received from the mines at Sankt Joachimsthal 10 grammes of radium which represent the entire production of 18 months.

TORBAY HOSPITAL, TORQUAY.—The late Miss Bradford has left estate, amounting to about £3354, which is to revert to the Torbay Hospital, on the expiry of a life interest.

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.—The St. Thomas's Hospital old students' dinner will take place at the Hotel Cecil on Friday, Oct. 1st, at 7 o'clock for 7.30. The chair will be taken by Mr. J. B. Lawford. The price of the dinner, inclusive of steward's fee, is 12*s.* 6*d.*, to be paid at the Hotel Cecil.

WEST LONDON POST-GRADUATE COLLEGE.—The opening address of the winter session will be delivered in the college on Oct. 11th, at 5 P.M., by Professor Schott of Nauheim.

UNIVERSITY OF LONDON: CHARING CROSS MEDICAL SCHOOL.—We are informed that Lord Ridley will be unable to distribute the prizes and deliver the opening address at this school as has been announced. Sir T. Clifford Allbutt has consented to fill the breach.

WESTON-SUPER-MARE HOSPITAL.—The members of the local friendly societies at Weston-super-Mare made their annual collections for the hospital on Sept. 11th, when £54 were raised. This sum is greater than that collected in 1908.

UNIVERSITY OF CAMBRIDGE.—We may remind intending students in the Faculty of Medicine of the University of Cambridge that they now have the option of passing their first examination for the degree of Bachelor of Medicine in October on admission to the University. This is a great facility granted to those who embark upon the rather lengthy process of graduation in medicine and should lead to a thoroughly good employment of his time by the successful student.

THE CHILD STUDY SOCIETY.—This society has issued its prospectus of lectures and discussions for the opening half of the winter session, which will open with a reception of members by the President, the Earl of Stamford, at 90, Buckingham Palace-road, London, S.W., on Oct. 7th, at 8 P.M. On this occasion short addresses will be given by Miss Alice Ravenhill, Dr. C. W. Kimmins, and Dr. G. E. Shuttleworth. Anyone desiring to attend the lectures of the society should communicate with the honorary secretary, Mr. W. J. D. Mulford, at the address already given.

MEDICAL MEN AND CHILDREN'S CARE COMMITTEES.—The Wandsworth borough council recently wrote to the London County Council urging concurrence in the view of the British Medical Association that medical practitioners should be included in the membership of school care committees. The Wandsworth education committee has now issued a report stating that it has received a reply from the education officer of the London County Council to the effect that endeavours are being made by the County Council to obtain the services of persons possessing special knowledge of the work of care committees, and that the Children's Care (Central) Subcommittee would welcome the names of medical practitioners willing to serve on such committees.

THE POOR-LAW OFFICERS' ASSOCIATION AND VACCINATION.—At a recent council meeting of the National Poor-law Officers' Association at Newcastle a report was received from the Executive Committee containing correspondence between the association and the Local Government Board concerning the depletion of public vaccinators' incomes owing to the Vaccination Act and Orders of 1907. The Board had refused to take action or receive a deputation on the facts and figures at present before them. On the motion of Mr. W. D. Elsham it was resolved:—

That, having considered the reply in the House of Commons of the Right Hon. John Burns, M.P., President of the Local Government Board, on May 12th, to the question relative to the loss of income by vaccination officers through the operation of the Vaccination Act and Orders of 1907, and having also considered the replies of the Local Government Board to various communications addressed to them by this association, and also to the National Vaccination Officers' Association, especially the letter addressed to the latter on July 31st, 1908, from which there seemed reasonable hopes of the officers concerned (some 1400) receiving redress, do hereby place on record their disappointment that the Local Government Board now express the view that the matter is not one to be dealt with by general action.

Mr. Elsham, in the course of his speech, said that last year there were 17·2 per cent. of exemptions, as compared with 4 per cent. in 1905. Mr. Burns had himself admitted that public vaccinators' incomes had fallen off by 13 per cent. Mr. Elsham further moved that steps should be taken to raise the question in Parliament, and a committee was appointed with power to deal with this matter.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Education (Physical Training) Bill.

Viscount HILL'S Bill to provide for physical training in elementary, secondary, and continuation schools has been printed. In a memorandum it is stated that the object of the Bill is to secure continuous physical training for the youth of both sexes up to the age of 16 years, in order, as far as possible, to ensure for each young person the possession of sound and healthy vital organs, a deep mobile chest, and the development of an evenly balanced muscular and nervous system, and thus to arrest the deplorable physical degeneration disclosed by the Report of the Inter-Departmental Committee on Physical Deterioration.

The Bill lays down that a portion of each school day shall be devoted to physical training. A standard of qualification is set up for the persons who are to be appointed instructors of physical culture. One of the subsections to the third clause lays down that the medical inspection officer shall arrange with the specialists in physical training for a yearly examination of the children in each elementary school, and the records of the measurements of the children and the condition of heart, lungs, and other vital organs shall be kept during the school life of each child. It is further laid down in the Bill that for children or young persons who leave school, attendance at continuation classes for physical training shall be compulsory up to the age of 16.

The Oaths Bill.

The Oaths Bill, which is designed to promote the custom of taking the oath in a court of law by uplifted hand, has received a second reading by the House of Lords.

The Housing and Town Planning Bill.

On Tuesday, Sept. 21st, the House of Lords commenced the consideration of the Housing and Town Planning Bill in Committee, but at the conclusion of the debate the housing part of the measure was still under consideration.

Metropolitan Ambulances Bill.

The Metropolitan Ambulances Bill, which is designed to enable the London County Council to establish and maintain an ambulance service in London, has passed through Committee of the House of Lords. It came up for consideration after midnight, and for this reason the Earl of DONOUGHMORE postponed his amendment to allow the County Council to enter into an arrangement with the Metropolitan Asylums Board for the maintenance and provision of ambulances. He is entitled to bring the amendment forward at a later stage.

The Health of the Navy.

The statistical report on the health of the navy for the year 1908 is now available as a Parliamentary Blue-book.

HOUSE OF COMMONS.

THURSDAY, SEPT. 16TH.

Lady Medical Missionaries in Madagascar.

Sir GILBERT PARKER asked the Secretary of State for Foreign Affairs whether lady medical missionaries, fully qualified, one of whom held a gold medal given in 1896 by the French Government for her care of the wounded, had been forbidden to give out medicine to the natives in Madagascar under pain of legal proceedings; and whether this Government had made any representations on the subject to the French authorities.—Sir EDWARD GREY replied: I am not aware of the circumstances referred to by the hon. Member. The question of the qualification of foreigners to practise medicine in France or her colonies is governed by French law, according to which no one is allowed to practise medicine in France or in her colonies without a diploma of medicine given by the French Government subject to certain qualifications.

Sir GILBERT PARKER: Will the right honourable gentleman allow me to send him information on this particular case?

Sir EDWARD GREY: Yes; but I hope the honourable Member will be able to include in it a statement as to whether the lady missionaries have complied with the French regulations.

Rats and the Plague.

Mr. ALFRED KING asked the Under Secretary of State for India whether the Indian Government still adhered to the theory that plague in man was due to bites of infected rat fleas; and, if they did not, what theory were they now acting on, and had they made such changes in their administration as were necessary to meet the new situation.—The MASTER OF ELIBANK answered: The connexion between bubonic plague in man and plague in rats is well established, and rat destruction continues to hold a prominent place among the preventive measures adopted by the Government of India. The steps taken to prevent plague have been published through the Moral and Material Progress Report and other publications. Besides these special measures the Government of India are now considering an important scheme for the improvement of the sanitary service.

Mr. KING: Has the honourable gentleman seen the statement that this rat flea theory is entirely disputed?—The MASTER OF ELIBANK: I have seen a statement to that effect, but the theory is not held to have been disproved.

Mr. REES: Has plague not greatly abated?—The MASTER OF ELIBANK: There is considerable abatement.

Patent Medicines.

Captain CRAIG asked the Secretary of State for the Home Department whether he would consider the advisability of issuing regulations making it compulsory on all manufacturers of medicines liable to patent medicine duty to print on the label on the bottle, or other vessel in which such was sold, the full ingredients of such bottles or vessels, as well as the diseases they purported to cure; and whether he would consider the advisability of increasing the size of the lettering of the Government stamp as a further precaution against ignorant people believing that the contents were guaranteed by the Government.—Mr. GLADSTONE replied: I am in communication with the Privy Council office about the point raised in the first part of the question, but I am disposed to think that the matter may be one of sufficient importance for an inquiry by a Select Committee next session. As regards the second part of the question I am informed that new designs for medicine stamps have recently been adopted and the printing plates are being prepared by the engravers. In the new designs it will be more clearly indicated that the stamp does not imply any Government guarantee.

Captain CRAIG: Am I to understand that a Select Committee will actually be appointed next session?

Mr. GLADSTONE: No. At the same time I am disposed to think that it may be desirable.

Certifying Surgeons and Clubs.

Mr. WILLIAM THORNE asked the Secretary of State for the Home Department whether he was aware that the permanently appointed factory surgeon for the Hull district was a medical man in connexion with the sick club at the firm of Messrs. Blundell, Spence, and Co., Hull; whether the Government allowed the permanently appointed factory surgeons to act as medical examiners to sick clubs for private firms; and whether he intended taking action in the manner.—Mr. GLADSTONE answered: I have no information as to whether the certifying surgeon at Hull is connected with the sick club referred to, but it is a very usual thing for certifying surgeons to be connected with clubs under the management either of employers or of workmen, and in some districts it would be difficult to find a medical man who was not so connected. If there is any allegation of grievance in this particular case I shall be happy to make inquiry on receiving a statement of the details from the honourable Member.

Women and the Royal College of Surgeons of England.

Mr. KEIR HARDIE asked the Secretary of State for the Home Department whether he had received for sanction and ratification the new by-laws of the Council of the Royal College of Surgeons regarding the admission of women to their examinations, agreed to on April 1st last; whether he was aware that the delay in issuing the by-laws was causing inconvenience to women students waiting to go up for their examinations; and whether he could say when the by-laws were likely to be issued.—Mr. GLADSTONE wrote, in reply: I have already, on the 25th ult., signified to the Council my decision to approve these by-laws. My approval will be given as soon as they submit the formal document for my signature. I understand that they cannot do this before their meeting on Oct. 14th, but it will still, I believe, be possible to complete the necessary formalities in time for women to be allowed to enter for the examination of the Royal College to be held in January next.

Declarations under the Vaccination Act, 1907.

Sir MAURICE LEVY asked the President of the Local Government Board whether he would give instructions to vaccination officers to accept declarations under the Vaccination Act, 1907, made by mothers in the absence of their husbands at sea or anywhere where they were unable to make the declaration.—Mr. BURNS (by written answer) replied: The Law Officers advised in 1898 that under ordinary circumstances the father was the person to obtain a certificate of conscientious objection, and a similar view would no doubt apply to the making of a statutory declaration under the Vaccination Act, 1907. A declaration made by the mother would not relieve the father from liability. It would, however, relieve her from liability, and for this purpose it should be accepted by the vaccination officer. Where it has appeared to me necessary I have informed the vaccination officer to this effect. It does not seem to be necessary to make any general communication on the subject.

MONDAY, SEPT. 20TH.

Patent Medicines.

Captain CRAIG asked the Secretary to the Treasury whether he could state the total value of all medicines on which patent medicine duty was paid imported into the United Kingdom and manufactured in the United Kingdom respectively during the years 1906-7, 1907-8, and 1908-9.—Mr. HOBHOUSE replied: I regret that the information is not available.

The Inebriates Act.

Mr. SNOWDEN asked the Secretary of State for the Home Department whether it was the intention to legislate at an early date in the direction of amending the Inebriates Act; and, if so, could he say when the Bill would be introduced.—Mr. GLADSTONE replied: I hope to introduce a Bill on this subject early next session.

TUESDAY, SEPT. 21ST.

Tuberculosis in the Army.

Mr. SUMMERBELL asked the Secretary of State for War whether he could state the number of soldiers who had been dismissed from the army suffering from consumption during the past 12 months; and whether any provision, and for what number, was made by his department in order to enable them to cope with the disease.—Mr. HALDANE replied: The number of cases of discharges for tubercle of the lung in 1908 was 272. Statistics for later periods are not available at the War Office as the returns are only made up annually, and a special return would be necessary to secure the information. As regards the last part of the question, no special provision is made by the War Office, but the authorities of military hospitals endeavour to arrange locally for these men to be taken into homes on discharge.

Rejections of Recruits.

Answering Mr. SUMMERBELL, Mr. HALDANE stated that the number of recruits for the army rejected as medically unfit from July 1st, 1908, to June 30th, 1909, was 16,552. Of these 4719 were rejected at London, 583 at Birmingham, 219 at Bristol, 555 at Liverpool, 479 at Belfast, 302 at Dublin, 307 at Edinburgh, and 629 at Glasgow.

WEDNESDAY, SEPT. 22ND.

Defective Teeth in the Army.

Mr. WILLIAM THORNE asked the Secretary of State for War whether

he could now state whether the 11 soldiers who were discharged during the week ending Sept. 19th, 1909, at Colchester on account of bad teeth were discharged from the Army entirely or only discharged from the colours to the first-class Army Reserve.—Mr. HALDANE replied: Thirteen men of the 8th Hussars, who are under orders for service in India, were rejected as medically unfit on account of defective teeth. The sum of £1 per head is granted for dental treatment of men with defective teeth, but as the cost of such treatment was assessed at a larger sum for these men they were given the option of paying the extra amount required to make their teeth sound, or of being discharged as medically unfit for further service. Three men elected the former course and ten the latter.

BOOKS, ETC., RECEIVED.

CASSELL AND COMPANY, LIMITED, London, New York, Toronto, and Melbourne.

Diseases of the Stomach. By S. H. Habershon, M.A., M.D., F.R.C.P. Price 9s. net.

CLARENDON PRESS, Oxford.

An Introduction to the Study of Biology. By J. W. Kirkaldy and I. M. Drummond. Price 6s. 6d.

FROWDE, HENRY, and HODDER AND STOUGHTON, London.

Oxford Medical Publications. A System of Operative Surgery. By Various Authors. Edited by F. F. Burghard, M.S. Lond., F.R.C.S. Eng. In four volumes. Vol. II. Price 36s. net per volume, or £8 net per set of four volumes.

KEGAN PAUL, TRENCH, TRÜBNER AND CO., LIMITED, London.

The International Scientific Series. Edited by F. Legge. The Periodic Law. By A. E. Garrett, B.Sc. (By Research) Lond., F.R.A.S., Fellow of the Physical Society, &c. Price 5s.

MACMILLAN AND CO., LIMITED, London.

Inflammation. An Introduction to the Study of Pathology. Being the Reprint (revised and enlarged) of an Article in Professor Allbutt's "System of Medicine." By J. George Adami, M.A., M.D., F.R.S. Price 5s. net.

MILLS AND BOON, LIMITED, London.

Arsène Lupin. From the Play by Maurice Leblanc and Francis de Croisset. By Edgar Jepson and Maurice Leblanc. Price 6s.
Tess of Ithaca. By Grace Miller White. Price 6s.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BODY, HENRY MARTEN, M.R.C.S., L.S.A., has been appointed Medical Officer of Health of Crediton (Devon).

BROOMHEAD, C. H., M.B., Ch.B. Vict., M.B., B.S. Lond., has been appointed House Surgeon at the Salford Royal Hospital.

BROWN, A. C., M.B., Ch.B. St. And., has been appointed House Physician at the Salford Royal Hospital.

CURRIE, J., M.B., C.M. Edin., has been reappointed Medical Officer of Health for the Lees Urban District Council of Oldham.

DESPREZ, HENRY SOULBIEU, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Northtawton District by the Okehampton (Devon) Board of Guardians.

EVANS, RICHARD, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer to the No. 3 District of the Wrexham Board of Guardians.

GOUGH, WILLIAM, B.Sc., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Hospital for Women and Children at Leeds.

HOLDEN, WILLIAM, M.B. Edin., has been appointed Resident Medical Officer to the Victoria Hospital, Burnley.

JONES, ARTHUR WILLIAM LLEWELYN, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Kingsteignton District by the Newton Abbot (Devon) Board of Guardians.

KERR, CHARLES, M.B., C.M. Edin., has been appointed Clinical Medical Tutor in St. Andrew's University.

MACINTYRE, JOHN, M.B., C.M. Glasg., has been appointed Inspector for the Medical Examination and Supervision of School Children for the County of Lanark.

MACKINNON, W. JONES, M.D., C.M. Glasg., D.P.H., has been appointed Inspector for the Medical Examination and Supervision of School Children for the County of Lanark.

MILNE, F. M., M.B., Ch.B. St. And., has been appointed Lecturer in Clinical Pathology in St. Andrew's University.

PARRY, T. WILFRED, M.B., Ch.B. Liverp., has been appointed Assistant Medical Superintendent to St. Giles' Infirmary, Camberwell.

SHARPE, F. A., M.B., B.S. Lond., D.P.H., has been appointed Senior Assistant Medical Officer of Health and School Medical Officer for the County Borough of Derby.

WALKER, E. A., M.B., Ch.B. Edin., has been appointed Resident Surgical Officer at the Salford Royal Hospital.

WEATHERBE, PHILIP, M.B., Ch.B. Edin., has been appointed Honorary Surgeon to the Children's Hospital, Halifax, Canada, and Associate Professor of Surgery to the Halifax Medical College, Canada.

WILSON, E. A., has been appointed Medical Officer for the Captain Scott Expedition to the South Pole.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

BANBURY, HORTON INFIRMARY.—House Surgeon. Salary £80 per annum, with board and residence.

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.—Two House Surgeons, for six months. Salary at rate of £75 per annum, with board and residence.

BOURNEMOUTH, ROYAL BOSCOMBE AND WEST HANTS HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BRADFORD UNION WORKHOUSE AND HOSPITAL.—Assistant Resident Medical Officer. Salary £130 per annum, with rations, apartments, and laundry.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing. Also House Surgeon. Salary £75 per annum, with board, lodging, and laundry. Also Surgical Registrar and Honorary Assistant Dental Anæsthetist.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Anæsthetist. Salary 25 guineas per annum.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.—Registrar.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant.

CHESTER, CITY OF.—Assistant Medical Officer of Health. Salary £250 per annum.

CITY OF LONDON INFIRMARY AND WORKHOUSE.—Assistant Medical Officer. Salary £150 per annum, with apartments, rations, and washing.

CORK COUNTY SANATORIUM.—Resident Medical Superintendent. Salary £250 per annum, with board, residence, and laundry.

CUPAR-FIFE, FIFE DISTRICT ASYLUM.—Junior Assistant Medical Officer. Salary £120 per annum, with rooms, board, and attendance.

DERBY, COUNTY BOROUGH.—Assistant Medical Officer of Health. Salary £120 per annum, with board and lodging.

DERBYSHIRE EDUCATION COMMITTEE.—Assistant School Medical Officer. Salary £250 per annum.

DREADNOUGHT HOSPITAL, Greenwich.—Two House Physicians and Two House Surgeons. Salaries at rate of £50 per annum, with board, residence, and washing.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

EDINBURGH SCHOOL BOARD.—Two Assistant Medical Officers (one male, one female). Salaries £250 and £200 per annum.

HAMPSTEAD GENERAL HOSPITAL.—House Physician, also House Surgeon, both for six months. Salaries at rate of £70 per annum, with board and residence.

HERTFORD COUNTY HOSPITAL.—Resident House Surgeon and Secretary, unmarried. Salary at rate of £100 per annum, with board, washing, and apartments.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £30, with board and residence. Also Honorary Anæsthetist.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—Third House Surgeon. Salary £65 per annum, with board, lodging, and washing.

KETTERING AND DISTRICT GENERAL HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, &c.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Junior Assistant Medical Officer. Salary £100 per annum, with board, lodging, and attendance.

KING'S LYNN, WEST NORFOLK AND LYNN HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

LEEDS, HOSPITAL FOR WOMEN AND CHILDREN.—Two House Surgeons. Salary at rate of £50 per annum, with board.

LEEDS UNION INSTITUTIONS, Beckett-street.—Assistant Medical Officer, unmarried. Salary £120 per annum, with board, washing, apartments, and attendance.

LEITH HOSPITAL.—Medical Registrar.

LINCOLN COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £75 per annum, with board, residence, and washing.

MACCLESFIELD GENERAL INFIRMARY.—Senior House Surgeon. Also Junior House Surgeon. Salaries £100 and £60 per annum respectively, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury.—Resident Medical Officer, unmarried. Salary for the first six months £40, and for the second six months £50.

MANCHESTER JEWISH HOSPITAL, Elizabeth-street, Cheetham, Manchester.—Locum Tenens Medical Officer. Salary £2 2s. per week.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Senior and Junior Resident Medical Officers. Salary of former £100, and of latter £50 per annum, with board and residence. Also Assistant Physician.

NORWICH, NORFOLK AND NORWICH HOSPITAL.—House Physician, also Assistant House Surgeon. Salaries £80 and £20 per annum respectively, with board, lodging, and washing.

NOTTINGHAM GENERAL DISPENSARY.—Two Assistant Resident Surgeons, unmarried. Salary £160 each, with apartments, attendance, light, and fuel.

ORKNEY, PARISH COUNCIL, PAPA WESTRAY.—Medical Officer and Public Vaccinator. Salary £100 per annum and fees.

PAISLEY, GOVAN DISTRICT ASYLUM, Hawkhead.—Second Assistant Medical Officer. Salary £150 per annum, with rooms, board, laundry, and attendance.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £60 per annum, with board, residence, and laundry.

RAINHILL, NEAR LIVERPOOL, COUNTY ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with apartments, board, attendance, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum, with rooms, board, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, London, E.C.—Resident Medical Officer for six months. Salary at rate of £120 per annum, with board, lodging, and washing.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident House Surgeon. Salary £100 per annum, with board, residence, and washing.

RYDE, ROYAL ISLE OF WIGHT COUNTY HOSPITAL.—Resident House Surgeon. Salary £125 per annum.

ST. GILES', CAMBERWELL, INFIRMARY AND WORKHOUSE.—Assistant Medical Officer for the Infirmary, Brunswick-square, Camberwell, and for the Workhouse, Gordon-road, Peckham. Salary £140 per annum, with apartments, board, and washing. Also Assistant Medical Officer for the Infirmary. Salary £120 per annum, with apartments, board, and washing.

SOUTH SHIELDS, INGHAM INFIRMARY AND SOUTH SHIELDS AND WESTOE DISPENSARY.—Senior House Surgeon. Salary £100 per annum, with residence, board, and washing.

SOUTH WALES AND MONMOUTHSHIRE UNIVERSITY COLLEGE.—Assistant Lecturer and Demonstrator in Anatomy.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Secretary and House Governor. Salary £500 per annum, non-resident.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

TEIGNMOUTH HOSPITAL, S. Devon.—House Surgeon. Salary £70 per annum, with board, residence, and laundry.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Junior Resident Medical Officer. Salary £80 per annum.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, London, W.C.—Physician in Charge of the Skin Out-patients' Department.

WANDSWORTH UNION INFIRMARY, St. John's-hill, near Clapham Junction.—Junior Assistant Medical Officer, unmarried. Salary at rate of £120 per annum, with board, lodging, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Clinical Assistants and Casualty Officers.

WESTON-SUPER-MARE HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board and residence.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Bishops Stortford, in the county of Hertford; at Dysart, in the county of Fife; at Normanton, in the county of York; and at Dunoon, in the county of Ayr.

Births, Marriages, and Deaths.

BIRTHS.

CRABTREE.—On Sept. 12th, at Furneux Pelham, Herts, the wife of E. F. Crabtree, M.R.C.S., L.R.C.P. Lond., of a son.

TULK-HART.—On August 20th, at 4, Gloucester-place, Brighton, the wife of T. Tulk-Hart, M.D., of a son.

WALTHER.—On Sept. 18th, at Castlerigg, St. Leonards-on-Sea, the wife of Dr. David Walther, of a son.

YOUNG.—On Sept. 16th, at Stoney Stanton, Hinckley, Leicestershire, the wife of Graham Pallister Young, M.B., B.S. Lond., of a son (Michael Pallister).

MARRIAGES.

MCKEAN—DUNSTAN.—On Sept. 16th, 1909, at Emmanuel Church, Southport, by the Revd. G. J. Howson, chaplain to the Lord Bishop of Liverpool, George Bartley McKean, M.B., B.S. Lond., F.R.C.S.E., of Ledbury, Herefordshire, son of William McKean, Montono, Malone Park, Belfast, to Dorothy Emily Fortescue, only child of George Woolley Dunstan, of 7, Cambridge-road, Southport.

SHARP—SUTCLIFFE.—On Sept. 15th, at Bolton Abbey Church, by the Rev. J. F. Macnabb, Alexander Dunstan Sharp, F.R.C.S.E., of Park-square, Leeds, to Amelia Sutcliffe, M.B., Ch.M.Edin., daughter of the late Henry Sutcliffe, Esq., J.P., Eastmoor, Ilkley.

TURNER—MACDOUGALL.—On Sept. 15th, at King's College Chapel, Aberdeen, by the Very Revd. Sir James Cameron Lees, K.C.V.O., assisted by the Revd. P. W. Minto, Cannes, William Aldren Turner, M.D., F.R.C.P., 18, Harley-street, London, eldest son of Sir William Turner, K.C.B., Principal of Edinburgh University, to Helen Mary Mackenzie, third daughter of Dr. J. A. MacDougall, F.R.C.S.E., Letterewe, Cannes.

WATSON—SELBY.—On Sept. 20th, at St. Matthew's Church, Bayswater, London, Cecil Francis Watson, L.R.C.P. Lond., M.R.C.S. Eng., to Elizabeth, youngest daughter of A. Mitchell Selby, Aberdeenshire.

WHEAT—PARKER-BILLINGHAM.—On August 30th, at Germiston, Transvaal, S.A., Ernest Godfrey Wheat, M.A., B.C. Cantab., M.R.C.S., L.R.C.P., to Alice Magdalene Parker-Billingham, of East London, Cape Colony. S.A. papers please copy.

DEATHS.

BISS.—On Sept. 20th, at Eastbourne, Hubert Biss, M.A., M.D., D.P.H. aged 37. Funeral on Friday at 2.15, at St. Anne's, Upperton-gardens, Eastbourne. Friends, kindly accept this, the only intimation.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

A CLUB FOR MEDICAL BENEFITS.

Dr. W. S. Hall and Dr. B. P. Viret, in their character as partners in medical practice at Bradford, have received the following letter, which is worth printing as showing the opinion which a certain sort of enterprising layman has of the proper position and the money value of medical services:—

22, Plimsoll St., New Hey Rd.,
Wakefield Rd., Bfd.,
Aug. 11th, 09.

DEAR SIRS,—We beg to be excused for writing you direct, but we have a buisness proposition to make. We are selling a household necessity with which we giving medical benefit to the weekly buyers of same. We are prepared to introduce members at the rate of 30 per week, and for which we pay the doctor, three farthings per head, per week. This will work out as follows. 1st week 5s., in one month's time £1 0 0 weekly; 3 months' time £3 5 0 weekly; six months' time £6 10 0 weekly, or in short £13 0 0 weekly in 12 months time. We are confident of averaging the above rate of increase, and will avoid all clerical work as far as possible for the doctor and supply him with all necessary stationery. Each member signs a declaration that at the time of entry they are in good health and will not be eligible for medical treatment for 1 month. The buisness is carried on in a straightforward, buisness-like way and no doctor can suffer any discredit by being associated with us. If you favor this matter we shall be pleased to meet you at your appointed time and explain all details. A reply will oblige

Yours faithfully,

DR. VERET. GEO. KNIGHT GILL, Manager.
DR. HALL.

Dr. Hall and Dr. Viret not unnaturally were indignant at being approached in this way, and being invited to increase the saleability of a "household necessity" by placing their professional skill at the vendor's disposal. We have no doubt that Mr. George Knight Gill has found them very short-sighted for not jumping at his proposal, and will find us prejudiced for saying that it is a wrong one. The offering of medical benefits as a sort of rebate to the public who purchase the "household necessity" proves a conception of medicine that is cheap beyond parallel in our experience. Setting that aspect on one side—which in actuality, of course, cannot be done—Mr. Gill appears to offer the medical men, whom he has selected to approach, £1 to attend to all the ills which may be manifested by 320 persons, who have had a month to think how they may best set off the cost of the "household necessity" by the receipt of medical benefits, and apparently these people are themselves to be the judges if they are in good health or no, when they engage in the scheme. "There ain't a word for it," said the costermonger.

SHOPKEEPERS AND UNSOUND FRUIT.

A RECENT case of illness among a number of children through picking up and eating fruit discarded by a dealer in a town in Co. Antrim, Ireland, calls attention to a habit which is very common among greengrocers and fruit-dealers generally. It is very common to see dealers in fruit, while sorting over their stock, and even while in the act of serving customers, throwing the unsound or over-ripe specimens into the street or road, as the case may be. No one can blame the half-starved urchin for picking up the discarded fruit and eating it, but the result may be serious. There is also danger to adult passers-by, who may easily slip and either break or seriously injure a limb, and still further risk attends all horse traffic. But apart from all these possibilities, it is an offence against the public health to deposit wilfully over-ripe plums, "sleepy" pears, bruised apples, or other decaying fruit in the public highway. It would be a very easy matter for greengrocers and fruit-dealers to allot a small receptacle in which such unwholesome stock could be deposited and at the end of the day be emptied into the dustbin. Sanitary authorities may well give attention to this dangerous and insanitary custom of a very large number of shopkeepers.

A CATALOGUE OF MEDICAL AND SCIENTIFIC LITERATURE.

A WELL-ARRANGED catalogue is appreciated by the busy practitioner and the scientific investigator alike, and Messrs. J. and A. Churchill's illustrated catalogue of their publications in medicine and natural science for October, 1909, will therefore be welcomed. The books have been classified under 34 heads, and at the end is an index of about 400 important authors' names, alphabetically arranged, with the page or pages of the catalogue upon which the titles and particulars of their works published by Messrs. Churchill are set forth. We read with interest a full-page description of the Medical Directory, first issued in 1845, which is rightly described by the *Times* as "The Gigantic Medical Who's Who." As a part of the bulk which makes it "gigantic" consists of the enumeration under the names of the authors of contributions to the medical journals,

it may be interesting to quote here a paragraph from the preface to Mr. Churchill's Directory for 1846. He says: "Considerable difference of opinion has been expressed respecting the propriety of inserting the enumeration and particulars of contributions to the medical journals by members of the profession; some of the professional periodicals and some of our correspondents approving, and others condemning their introduction. Various reasons, *pro* and *con.*, have been assigned; some consider it of great importance that a minute record should exist of the contributions of professional men, while others object that it leads to improper, and, sometimes, ridiculous display on the part of individuals. For the present we have, in the enumeration of papers, &c., allowed each member to speak for himself, and we trust that, ultimately, the respect of individual members for the general body will be sufficient to prevent any outrages upon good taste and propriety in this respect." THE LANCET held that a record should exist of the contributions of medical men, although not of necessity in a medical directory, and a few particulars of the history of the Medical Directory as recorded in our own columns may be of interest, for they reveal a pretty taste in quarrelling. The Directory was first named "The London Medical Directory," and was published in 1845 by C. Mitchell, London. The idea of the publication first occurred, it has always been said, to the original Wakley, the Founder of THE LANCET, who reviewed the first edition in THE LANCET of March 29th, 1845, with great favour. The second edition in the following year bore the imprint of John Churchill, Princes-street, Soho, London, and consisted of 270 small pages (about 7 × 4 inches), which with its red covers weighed no more than 11 ounces. But this edition is the real parent of the present portly volume. In 1847 the Directory appeared with the title, "The Provincial Medical Directory," which the reviewer in THE LANCET stated was "sent out incorporated with copies of 'The London Medical Directory,'" and in the following year, 1848, the publication appeared as "The London and Provincial Medical Directory." Up to this point Wakley seems to have approved highly of the work, but soon a change came over the scene, for THE LANCET published on Jan. 24th, 1852, a very depreciatory review of "The London and Provincial Medical Directory," whose office was then at Adam-street, Adelphi, London. On Feb. 14th, 1852, a letter appeared in THE LANCET from a medical man on the necessity for a new Medical Directory, and in May an advertisement appeared in our columns announcing the issue of a new Directory. On August 21st, 1852, there appeared in THE LANCET a letter signed by the editors of "The British Medical Directory," dated from THE LANCET Office, Strand, and addressed "To the legally-qualified members of the medical profession resident in Great Britain," setting forth the intentions of the new work, and on March 5th, 1853, the first issue of the new Directory was reviewed in our columns. It bore the title, "The British Medical Directory for England, Wales, and Scotland." In this review the Editor of THE LANCET states that "The London and Provincial Directory" of 1852 cost 7*s.* 6*d.* to subscribers and 10*s.* to non-subscribers, while separate Directories were got up for Scotland and Ireland at a further cost of 5*s.* for each. The new Directory was sold for 6*s.*, which caused an immediate reduction in price of the older Directory, but which led to still more interesting happenings. For the new Directory was the cause of proceedings in the Queen's Bench on July 11th, 1854, before Lord Campbell and a special jury, a Mr. Yearsley, contemptuously alluded to by Wakley as "Yearsley the aurist," bringing an action against Wakley for an alleged breach of copyright. It was asserted that in the compilation of "The British Medical Directory" the defendant had made such use of the plaintiff's works, "The London and Provincial" and "Scottish Medical Directories" as amounted to an act of piracy. This suit was at length, as THE LANCET announced on Nov. 25th, 1854, brought to an amicable termination through the intervention of mutual friends, and in pursuance of the arrangement "The British Medical Directory" was merged in "The London and Provincial Medical Directory." The Directory for 1868 had the following voluminous title:—"The London and Provincial Medical Directory; inclusive of the Medical Directory for Scotland and the Medical Directory for Ireland, and General Medical Register." The Editor of THE LANCET, in reviewing it, questioned the propriety of the addition in this issue of "General Medical Register" to the title, which appeared to him to be an infringement of the right of the Medical Council. Apparently it was in the following year that the title became "The Medical Directory," which it has since remained. Mr. John S. M. Churchill, the publisher of that Directory, also published THE LANCET between the years 1842 and 1847. He died in 1875, and particulars of his life will be found in the "Dictionary of National Biography."

THE NATIONAL LEAGUE FOR PHYSICAL EDUCATION AND IMPROVEMENT.

WE have previously referred to the good work which is being done by this League in stimulating public interest in the physical condition of the people. Many lectures have been delivered and various pamphlets have been issued. One of the leaflets referring to the feeding and care of infants has already reached a circulation of 40,000 copies and has now been printed in card form to be hung on the walls of the homes of the poor and thus be constantly before the eyes of the mother. The instructions on the card have been drawn up under the supervision of several prominent medical men and women, and the knowledge which it imparts should be possessed by everyone who has to do with the care of infants. The cards are supplied by the National League for Physical Education and Improvement, 11, Southampton-row, W.C., at the rate of 1*s.* a dozen. While thoroughly endorsing the instructions, we would suggest that the directions for administering raw meat juice to delicate and premature infants by means of shredded meat tied up in a clean piece of muslin should be qualified by the warning that the "meat teat" should be thrown away immediately the baby has finished sucking it. Otherwise, if he dropped it on the floor his mother might be quite capable of popping it back in his mouth. Perfectly fresh meat should obviously be used for this purpose, and it might be as well to say so on the many future editions of the card which we hope will be called for.

SYNTHESISED SWEETENING AGENTS.

To the Editor of THE LANCET.

SIR,—I have been frequently asked by patients who are abstainers from sugar in all forms, some for reasons of health, others, perhaps, because "Sweets grown common, lose their dear delight," whether the habitual use of saxin or other similar sweetening drugs is injurious to health. I should be glad to know if any of your readers can answer this question from their experience.

I am, Sir, yours faithfully,

Abingdon, Sept. 19th, 1909. PAULIN MARTIN.

DOMESTIC ANIMALS IN THE SICK ROOM.

M. P. Remlinger, Director of the Pasteur Institute at Constantinople, points out the danger of spreading disease through allowing domestic animals to enter the sick room. He smeared bouillon cultures of various micro-organisms on the coats of dogs and cats, and at regular intervals cut off a number of hairs and took cultures from them. As a result he found that the typhoid bacillus was present on the seventeenth day, and the organism of diphtheria on the twenty-fourth day, in undiminished virulence. That the danger is not an illusory one is within the knowledge of every practitioner from the frequency with which patients request that they may be allowed to play with a favourite cat or dog while confined to the sick room. Among the diseases mentioned by M. Remlinger as offering special danger in this way are scarlet fever, measles, diphtheria, whooping-cough, typhoid fever, and even tuberculosis. In order to prevent the infection of healthy persons with these and other diseases it is necessary to insist firmly on the banishment of all domestic pets from the sick room. It is obvious that woolly "animal" toys such as "teddy bears" are liable to become infected in a similar way, but in this case the simplest plan is to destroy the toys when the patient has recovered.

WANTED—AN OPERATING CHAIR.

To the Editor of THE LANCET.

SIR,—A lady medical missionary is anxious to obtain a "Howard" or similar chair for operating purposes, and I shall be glad if any member of the profession having one to dispose of at a small cost will kindly communicate with me, stating price, &c.

I am, Sir, yours faithfully,

Ferndale, Torquay, Sept. 21st, 1909. WILLIAM ODELL.

A TRAMP'S TEETH.

HOWEVER hard he must feel his lot to be, a tramp who visited the Chichester casual ward the other day considers it important for him to pay strict attention to his teeth. On being searched and relieved for the time being of all his belongings, the porter at the workhouse came across a toothbrush and powder, and the process of taking them from the owner was met with the request that he might be allowed to retain them while he was an inmate of the workhouse. The request was acceded to, and the guardians on Sept. 17th ratified the porter's action. The picture of the guardians assembled in solemn conclave to decide whether a tramp should be allowed to keep his teeth clean is pleasing. For our part we think that he deserved to be rewarded with a special diet for manifesting such unusual signs of grace. It would be interesting to hear how many workhouse unions provide their inmates with the means of cleaning their teeth.

LIVINGSTONE COLLEGE.

THE new session at Livingstone College will commence on Sept. 29th. The entry of students is fairly satisfactory, including, once more, students of various nationalities and of many denominations. By the recent death of Dr. William Wilson, secretary of the Friends' Foreign Mission Association, who was a member of the committee, the College has lost not only a warm friend, but one who, from his experience of different countries, was well able to give valuable advice, particularly as he was profoundly convinced of the necessity of elementary medical training for missionaries.

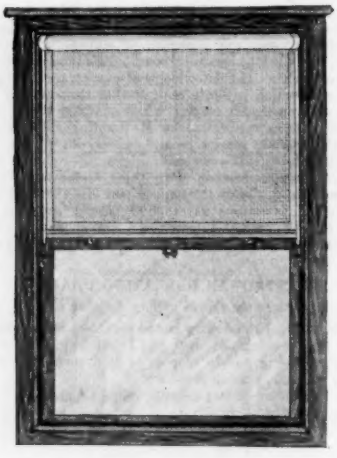
THE TRAFFIC IN OLD HORSES.

THE recent appointment of additional inspectors has not stopped the shameful trade in worn-out and diseased horses between this country and continental ports. On Sept. 14th a man named Arthur Manning was charged at Tower Bridge police court with cruelty to a horse. He was found leading a lame old animal down the Borough High-street on its way to the docks. A veterinary surgeon testified that

the horse was lame on account of contracted and painful tendons, due to an old injury, which rendered the animal unfit for travel. A previous conviction for a similar offence having been proved against Manning, who had given £6 10s. for the horse, Mr. Baggallay, the magistrate, very properly sent him to prison with hard labour for two months. It is much to be regretted that the Board of Agriculture has no statutory powers to stop entirely this evil practice, as was elicited by Sir Gilbert Parker in a question which he asked recently in the House of Commons. Perhaps we may some day see a small Bill introduced to deal with the matter.

THE "DUSTORFLI" HYGIENIC SCREEN.

THE suggestion has more than once been thrown out in these columns that railway carriages should be provided with a gauze frame in addition to a window so that ventilation could be secured to the exclusion of dust, cinders, and soot. Frequently the only reason for putting the window up is to keep out dust, and then ventilation is sacrificed. Our attention has recently been drawn by Messrs. Morriss and Birch, of 57 and 59, Ludgate Hill, to the "Dustorfli" hygienic screen, the invention of Mr. E. H. Hobling, schoolmaster, of 542, High-road, Leyton, N.E. The device, as will be seen from the accompanying illustration, is simple enough and its purpose is gained automatically. In the case of the ordinary railway carriage window a roller carrying a fine green gauze curtain is fixed at the top. The ends of the curtain are readily attached at the top of the window frame. When the window is lowered the curtain unrolls and takes its place. If it is desired to have the window space quite open the curtain can be detached. The



principle can obviously be applied to any kind of window. The appliance seems to us to be as simple, convenient, and effective as anything of the kind we have seen. It can be attached to existing windows with the greatest ease. The instances in which its application can confer great benefit are very apparent when, as a few examples, mention is made of the hospital ward to keep out both flies and dust, the business office with windows situated in a street full of dusty traffic, the provision shop, the larder, the kitchen, and so forth. There can be little doubt of the advantage of separating mechanical impurities and insects from the air we live in.

THE THERAPEUTIC VALUE OF CALCIUM CREASOTE.

ALTHOUGH the therapeutic value of creasote is generally recognised, its extremely acrid taste has militated against its wide employment. Various attempts have been made to eliminate this objectionable feature. Thus it has been incorporated with oil and enclosed in gelatin capsules, aqueous and alcoholic mixtures have been made, and various compounds of creasote—e.g., creasote carbonate—have been introduced, but with the exception of the carbonate no preparation of creasote appears to have satisfactorily solved the problem of administering the drug in adequate doses without causing nausea, vomiting, and digestive disturbances. It is of interest, therefore, to refer to a paper by Dr. Louis Kolipinski in a recent number of the *Monthly Cyclopædia and Medical Bulletin* (June, 1909), wherein he recommends a solution of calcium creasote as possessing in a perfect degree all of the medicinal virtues of creasote without any of its objectionable properties. Advantage is taken of the marked chemical affinity that exists between creasote and calcium hydroxide, which yield on trituration a purplish-red substance, with a slight odour of creasote and a sharp taste. It is soluble in water, giving a permanent solution when preserved out of contact with air. It is conveniently prepared by mixing about five pounds of calcium hydroxide with one pound of creasote and slowly percolating with water so as to produce a solution having a specific gravity of about 1·011. When prepared in this way one pound of creasote yields about 20 pints of calcium creasote solution, each fluid drachm of which contains about three drops of creasote. The solution has a smart peppery taste, but it does not exert an irritating or caustic action on the tegumentary membranes. A suitable dose for an infant of one year is from three to five drops in water every two or three hours. For a child of six to eight years doses of one teaspoonful may be given, and for an adult from one to two dessertspoonfuls in a glass of water. As much as six fluid ounces of the solution had been administered during the day without protest or any unpleasant symptoms. It is not necessary, however, to give more than a dessertspoonful in cases of acute disease. In rare instances Dr. Kolipinski has observed an intolerance of too large a dose, particularly in frail children, but a reduction of the dose to from 15 to 30 minims stopped the vomiting. In a few cases an eruption of the skin occurred on the extremities, trunk, and face, accompanied by some irritation, but the rash disappears within a few days, without suspending the treatment. Dr. Kolipinski recommends the use of solution of calcium creasote in a variety of conditions, such as pneumonia, in which, he declares, it slows the respiration and pulse, facilitates and increases the cough, and renders unnecessary the use of sedatives or hypnotics, and in enteric fever, in which it acts as an efficient, non-poisonous antiseptic to the mouth cavity, stomach, and intestine. Dr. Kolipinski suggests that it may be found useful in various systemic affections and local pathological conditions, and that it deserves a trial as a topical application in dermatological practice.

Perplexed.—We pointed out in these columns on August 14th that the reason why we could not reply was that our correspondent had not entrusted us with his name. He has removed this obstacle, the following being the case submitted for our consideration: "Recently in this parish a young fellow, about 25 years of age, spent the evening with some friends at a public-house (he did not drink much), and then talked to them in the road till 11 P.M. He then went home to bed and had a very restless night. About 7 A.M. he vomited, apparently bringing up some beer. He felt ill during the morning and died suddenly about 11 A.M. He had not been medically attended. The case was reported to the coroner—no medical evidence was sought—and no inquest was held." We have no hesitation whatever in saying that the circumstances, as described, called in a most distinct manner for an inquest at which medical evidence should have been forthcoming, and this, if necessary, after a post-mortem examination.

Berk.—The most recent exclusive work in English within our recollection is "The Thyroid and Parathyroid Gland," by Hubert Richardson, M.D., published by P. Blakiston and Sons, of 1012, Walnut-street, Philadelphia. Last year Doin of Paris published an "Étude sur la Physio-pathologie du Corps Thyroïde et de l'Hypophysie," by Leopold-Levi and Rothschild, but the title of this work implies that it is of more purely scientific than clinical interest. "Keen's Surgery," Vol. II. (London: W. B. Saunders and Co.), contains a good account of the surgery of the gland.

F. M.—We do not give professional advice and we recommend our correspondent to consult a medical man and not to waste his money upon quacks, crowds of whom specialise in the treatment of his ailment.

Scolex has not entrusted us with his name and address. We do not require to publish them, but without this guarantee we cannot answer his letter.

Dispenser is thanked for his letter, which has been brought to the attention of the Director of our Laboratory.

Henderson (Balham) is strongly advised not to purchase the apparatus.

ERRATUM.—In Dr. Archibald Leitch's paper on "*Peau d'Orange* in Acute Mammary Carcinoma," which we published in our last week's issue, the description of Fig. 3 (p. 863) should run "Projection drawing of a section through one of the dermal pits to show that it coincides with a hair follicle."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 23rd, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Sept. 17	30·10	S.E.	0·04	104	69	55	58	59	Overcast
,, 18	30·14	ESE	...	106	64	56	55	57	Fine
,, 19	30·14	N.W.	...	101	66	53	55	58	Fine
,, 20	30·05	W.	...	95	64	50	53	54	Overcast
,, 21	29·95	ESE	...	93	61	50	49	53	Misty
,, 22	29·88	S.E.	...	103	69	53	55	58	Fine
,, 23	30·02	E.	0·13	62	60	58	59	60	Overcast

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. J. L. Bunch: Clinique (Skin).
TUESDAY.—4 P.M., Dr. L. Guthrie: Clinique (Medical).
WEDNESDAY.—4 P.M., Mr. C. Leaf: Clinique (Surgical).
THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical).
FRIDAY.—4 P.M., Mr. J. G. French: Clinique (Ear, Nose, and Throat).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College 2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan 9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, (9 A.M., Major, 2 P.M.).

FRIDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.) Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor 9 A.M., Major, 2 P.M.).

SATURDAY (2nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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THE INDEX TO THE LANCET.

The Index to Vol. I. of 1909, which was completed with the issue of June 26th, and the Title-page to the volume, were given in THE LANCET of July 3rd.

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